North Coast LRMP

FINAL DRAFT

Socio-Economic and Environmental Assessment of LRMP Scenario developed by the North Coast LRMP Table as of April 2004

Volume I: Socio-Economic Analysis

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North Coast Land and Resource Management Plan Table and
BC Ministry of Sustainable Resource Management

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EXECUTIVE SUMMARY

Purpose

The primary purpose of this report is to summarize the socio-economic implications of implementing a management scenario proposed through the North Coast Land and Resource Management Plan (NC LRMP) process compared to the Baseline Scenario, which assumes current management practices are continued into the future.

It was undertaken in accordance with the SEEA methodologies outlined in the Ministry of Sustainable Resource Management documents entitled *Socio-Economic and Environmental Assessment for Land and Resource Management Planning in British Columbia: Guiding Principles* [Pierce Lefebvre February 2002] and *Socio-Economic and Environmental Impact Assessment for Land and Resource Management Planning in British Columbia* [Holman and Terry November November 2001].

Scenarios

A Base Case was analyzed, herein called the "Baseline" or "Baseline Scenario". For this project, it is the current set of management directions and rules, including the current amount of protection areas. *It is a baseline for analysis and represents neither a status quo option nor an Ecosystem-Based Management (EBM) alternative that is under consideration for future implementation by the BC Government.*

The Government Technical Team (GTT), which provides research and logistical support to the NC LRMP Table, has articulated a management scenario ("LRMP" or LRMP Scenario"), using its interpretation of Table decisions about a Table agreement-in-principle that it has been under development over the period of mid March to mid May 2004. The percentage share of the plan area's gross land base in current or proposed protection areas for each scenario is shown in the following table.

Table ES1 – Scenario protection area

Indicator	Plan's GLB Area (ha)	Scenarios	
		Baseline	LRMP
		% Share in Current or Proposed Protection Areas	
Gross land base	1,703,636 ha	3%	36%

Impact Assessment Results

The following table presents the impact assessment results for the studied socio-economic values for each scenario.

In this table, the cells are colour coded to indicate the benefit and cost category for each analyzed socio-economic value by each scenario, as per the following chart.

Impact Assessment Category	very positive	positive	neutral	negative	very negative
Colour code					

Table ES2 – Socio-Economic Impact Assessment Summary

Socio-Economic Value	Scenarios	
	Baseline	LRMP
Forest Industry	*Positive*	*Neutral*
Tourism & Recreation	*Negative*	*Very Positive*
Mineral exploration & mining industry	*Very Positive*	*Very Positive*
Government revenues	*Neutral*	*Positive*
Net economic value	*Negative*	*Positive*
First Nations	*Negative*	*Positive*
Communities	*Negative*	*Positive*

The North Coast SELES-based landscape simulation model indicates that timber supply for the LRMP Scenario relative to the Baseline Scenario would be reduced by 1.4% in the first decade, with a stepdown to a final long-term harvest level that is 27% below the current projected long-term harvest level. The following table summarizes timber supply, employment and government revenue impacts of the LRMP Scenario compared to the recent historical harvest and the Baseline Scenario.

Table ES3 – Forest Industry Timber Supply, Employment and Government Revenue Impacts

Forest industry impacts	Baseline Scenario	Current Harvest (2001-2003 annual average)	LRMP Scenario			Employment & Stumpage Impacts			
			Potential Harvest in First Decade	Potential Harvest in Third Decade	Potential Long Term Harvest	Short Term 1st decade	Med. Term 3rd decade	Long Term 6th decade	
Actual or potential harvest (m^3)	573,624	433,000	565,416	456,071	335,681	Jobs at-risk	Jobs-at-risk	Local Jobs-at-risk	Province Jobs-at-risk
Province-Wide Employment (Person Years)									
Current Direct	667	491	656	520	369	0	0	18 PY's	122 PY's
Indirect/ Induced	821	594	779	631	437	0	0	5 PY's	157 PY's
Total	1,487	1,085	1,464	1,151	807	0	0	23 PY's	278 PY's
Expected Stumpage Revenue ($/year)	1,250,000	944,000	1,233,000	994,000	732,000	Stumpage revenue-at-risk			
						0	0	212,000	

Because the TSA's actual harvest is below its AAC, employment dependency on the North Coast timber supply is currently much lower than the potential under the LRMP Scenario for the initial three decades of implementation. As a consequence, from a timber supply perspective, the North Coast LRMP does not generate *negative impacts on the current, short- or medium term levels of forest industry employment and stumpage revenue*. The LRMP Scenario's potential timber

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Net economic value	*Negative*	*Positive*
First Nations	*Negative*	*Positive*
Communities	*Negative*	*Positive*

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supply does not fall below the historical average actual harvest (433,000 m^3) until the fourth decade (409,455 m^3).

While the LRMP Scenario does not have substantial impacts when compared to current average harvest levels of the last decade, the timber supply impact assessment shows that the LRMP Scenario would reduce timber supply by 27% over the long term. Hence, the impact analysis suggests that LRMP Scenario implementation would reduce flexibility of forest operations by reducing access to timber in the longer term.

The preceding timber supply projections were undertaken with conventional site productivity indexes. A sensitivity analysis was undertaken, using SIBEC site indexes on the TSA's timber supply under current management conditions, which showed the TSA could support a much higher annual timber harvest of 884,000 m^3 (over the short- and long-term). Implementation of the proposed LRMP would reduce this amount by about 30%, to approximately 600,000 m^3, well above recent average annual harvest levels, and remain at this level over the long-term. Confirmation of SIBEC site productivity indexes[1] and adoption of them for projecting timber supply may alleviate concerns about negative employment and government revenue impacts for the North Coast TSA in the long-term.

Given the shift in MoF stumpage pricing policies in February 2004, stumpage revenues under the Market Pricing System are projected to be marginally above minimum stumpage for the North Coast timber supply, $2.18/m3, and down from the 3-year average of $4.91/$m^3$. Stumpage revenues therefore would decline from $2.1 million to under $1.0 million per year as a result of MPS, and this potential level of stumpage revenue would not likely be compromised until the third decade.

Longer summaries of socio-economic impacts for each studied value appear on the following pages of this executive summary.

Conclusions

The overarching conclusion is that the LRMP Scenario is clearly the best alternative from a socio-economic perspective, as it offers **"balanced protection"** through the following attractive features.

- sufficient protection of North Coast land and resources to sustain its base of tourism resources
- sufficient protection to likely satisfy conservation and cultural objectives of First Nations and conservation organizations
- neutral impact on forest industry, possibly positive to the extent that avoidance of environmental market action campaigns are factored in
- no loss in forest industry net economic value over the initial three decades of implementation and likely gains in the plan area's net economic value because of

[1] Significant ecological classification work is needed as a basis to apply the SIBEC estimates of site productivity. In addition, the long term timber supply impacts of improved site productivity estimates are uncertain due to limited experience with extensive managed forests on the North Coast. Nevertheless, the best available information on site productivity indicates the potential for improved tree growth to offset some of the impacts of the LRMP in future decades.

additional high end tourism investment and incremental preservation values associated with additional protection areas and introduction of EBM
- positive impact on the region's communities by sustaining tourism potential and the average historical timber harvest, protecting important salmon habitat and much improving security of access to the plan area's land and resources

Table ES2 clearly shows that the Baseline Scenario has several negative ratings and few positives.

An important element of the implementation of EBM in the draft NC LRMP and the CIT's Ecosystem-Based Management Handbook is the balancing of ecological and economic integrity. As shown in the Environmental Risk Assessment report of this SEEA, the environmental impacts of the LRMP Scenario are much more favourable than those of the Baseline Scenario.

Implementation of the LRMP Scenario would directly help to maintain opportunities for traditional coastal industries like forestry and mining while also providing market certainty for BC wood products, and further supporting opportunities in tourism and other emerging markets and business sectors, including using EBM and environmental protection as a foundation for those other sectors to build on. Given current information, the LRMP Scenario provides an acceptable level of environmental risk and much less risk than the Baseline Scenario. It is more likely to result in a diversified, sustainable North Coast economy, providing greater investor certainty, and protecting important environmental values than the Baseline Scenario.

Value	Baseline Scenario	LRMP Scenario
Forest industry economic developmen t	• North Coast TSA's AAC of 573,624 m^3 set in January, 2001. • The implication of a coast-wide marketplace for the North Coast TSA is price and quality competition from timber in other coastal TSAs and TFLs. This characteristic will be reinforced rather than weakened through expected changes in the TSA's apportionment, takeback reallocations, First Nation license awards, market price based stumpage and changes in cut control and appurtenancy rules. • Coastal BC timber is relatively expensive by comparison to timber from competing regions and North Coast timber is more expensive than more southerly coastal BC • In recent years, plan area direct forest industry employment has been approximately 0.18 PYs per '000 m^3 of harvested North Coast TSA	• Based on the timber harvest and supply projections, there are no jobs at risk in either the plan area or other parts of BC in the initial 30 years of a LRMP Scenario implementation. Jobs are not at risk from timber supply changes until the fourth decade; four direct forest industry jobs at the plan area level and 29 at the province-wide level. • For the initial three decades of the LRMP Scenario, potential annual timber supply exceeds the recent historical harvest of 433,000 m^3. • In the initial three decades, the LRMP and Baseline Scenarios are seen as having the same annual impacts on average, 78 plan area PYs and 491 province-wide PYs of direct forest industry employment.

	timber, less than one-sixth of the 1.25 PYs per '000 m^3 that is available if all North Coast timber is processed in the province. • In the future, NC TSA harvesting rights will be dominated by market loggers, only 40,000 m^3 will be directly tied to a company (Interfor) with wood processing capacity. • BC Government has awarded non-replaceable forest licenses (NRFLs) to several regional First Nations. Prince Rupert is developing a community forest proposal for submission to the BC Government. • Baseline Scenario's annual harvest estimate is projected as approximately 433,000 m^3, which is the 2001-2003 average actual harvest for the North Coast TSA, and is 75% of the North Coast TSA's AAC of 573,624 m^3 • If the full AAC of 573,624 m^3 was harvested, there would be 103 plan area PYs and 650 province-wide PYs tied to the TSA's timber. • Job loss from market boycotts is not factored into the Baseline Scenario employment estimation. ➢ Baseline Scenario – Positive impact	• A reduction in North Coast fibre supply could be compensated for by an increase in harvesting from elsewhere on the BC coast as there is an excess of potential wood fibre supply over demand in coastal BC, an estimated 3.7 million m^3. • Any additional LRMP induced harvesting cost needs confirmation through additional research. A pilot project undertaken prior to finalization of the LRMP and EBM Handbook identified an EBM induced additional cost of $7-9/$m^3$. If North Coast LRMP EBM measures result in significantly higher costs to operators, and log prices are low. then some of the forest stands that are currently operable may become uneconomic to harvest, thereby placing some timber harvesting employment at risk. • The proposed new visual management system will likely lead to higher harvesting costs on the basis of designating more area for visual management and using slightly more restrictive appearance requirements • The NC LRMP could help positively brand North Coast timber in critical marketplaces. The absence of a EBM-based LRMP could contribute to "negatively branding" North Coast timber, and become a serious marketplace hindrance. ➢ LRMP Scenario – Neutral impact

Value	Baseline Scenario	LRMP Scenario
Tourism & Recreation Economic Development	• It is estimated that there were approximately 1,300 direct tourism jobs for North Coast residents in 2001, about 22% of the plan area's basic sector total. • North Coast tourism indicates a static or declining trend in *conventional* visitor travel (as expressed in road, ferry and air traffic to and from Prince Rupert). Prince Rupert room revenues showed an 11% decline in its accommodation sector since 1995. This is in marked contrast with British Columbia as a whole, which registered a 50% increase in room revenues during the same period. An important factor has been the decline in business visitation because of the pulp and saw mill closures and the shrinking commercial salmon fishing industry on the North Coast • Plan area *Nature-based* tourism has expanded, however. For example, the volume of pocket cruises to Prince Rupert and Alaskan cruise liners plying the North Coast have increased steadily during this time. • The plan area tourism industry is typically fragmented. A telephone and in-person survey carried out on the North Coast in 2000 identified 140 tourism operators, who offer a broad range of products from accommodation and front country attractions to backcountry and fishing excursions. There is one high end nature-based tourism lodge, the King Pacific which lies just outside the plan area on Princess Royal Island. • 2% of the GLB that is classified	• At this juncture, there are 36 confirmed cruise ship stops at the new Northlands Terminal Cruise Ship berth for 2004, transporting approximately 60,000 passengers. The preliminary schedule indicates that about 20 ships will arrive in the morning or early afternoon, with stays of at least 4 hours. (exceeds by 50% the projected 1st year passenger volume in Prince Rupert Port Authority's terminal business case) If half of the 1st year's passengers off-load for a short stay, their spending will support approximately 240 seasonal tourism jobs. • A conservation sector consultant anticipates that coastal BC can support two more high end lodges. The King Pacific Lodge employs 27-30 persons during its season. • 15% of the GLB that is classified as high and very high visually sensitive would lie in protection areas under this scenario. • The following are a few of the protection areas with important tourism and recreation values that are in the LRMP Scenario's protection areas. *Dundas/Stephens Island* – offers some of the best kayaking and small boating opportunities along the coast; has beaches, pocket beaches, coves, island, islets and other features that make it an excellent tourism destination *Lowe Gamble/Alty Lake* – high scenic and recreation values, bear viewing; *Campania Island* – high scenic value; has tremendous potential for kayaking, hiking, beach activities and scenic photography; and, *Monkey Beach / Bishop Bay* – high cultural values, high recreation value;

	as high and very high visually sensitive would lie in protection areas under the Baseline Scenario. None of the principal North Coast Forest District travel corridors are currently designated as Protection Areas. • With the Baseline Scenario only 5% of the GLB offering areas that rank high in wilderness recreation opportunities. These include the very important Khutzeymateen grizzly reserve. • With the Baseline Scenario, only 1% of the GLB offering areas that rank high in land & marine-based wildlife viewing would be protected. • With the Baseline Scenario, only 8% of the GLB offering areas that rank high kayaking & hut-to-hut hiking would be protected. ➢ Baseline Scenario – Negative	cultural values, high recreation value; offers views and access to Bishop Bay Hotsprings for boaters. *Porcher Island group* – Contains very high recreation/tourism values associated with its beaches along the west peninsula and in the semi-protected waters of Kitkatla, as it offers the best all round area for kayaking (beginners to expert). Great potential for trail development. *Union Passage* – High potential. Provides protected access to the Khutzeymateen and Sommerville Unit, and the waters are extremely important for Humpback whale viewing • Approximately 7% more of the THLB (vs the Baseline) will come under visual management direction with the designations proposed in the draft visuals agreement. • In the LRMP Scenario, 41% of the GLB offering areas that rank high in wilderness recreation opportunities would lie in protection areas. • In the LRMP Scenario, 25% of the GLB offering areas that rank high for land & marine-based wildlife viewing values would be protected. • In the LRMP Scenario, 23% of the GLB offering areas that rank high for kayaking & hut-to-hut hiking values would be protected. • This scenario would assist in helping to "positively brand" North Coast tourism in critical marketplaces. ➢ LRMP Scenario – Very Positive

Value	Baseline Scenario	LRMP Scenario
Mineral exploration & Mining Economic Develop-ment	• The plan area has high mineral potential in the Kitsault (same group of rocks that run northward through Stewart, and which host Barrick Resources' Eskay Creek underground gold mine) and Ecstall (highly prospective for bedded sulphide deposits. Boliden's Myrah Falls underground copper-gold-zinc mine, near Campbell River, is an example what could possibly emerge in the Ecstall area if an economic deposit is discovered and defined.) • North Coast currently hosts only one small industrial mineral operation, which seasonally removes silica from the slag pile at Anyox. • The North Coast has been home to past producing metal mines at Anyox, Alice Arm, Kitsault, Porcher Island, and Smith Island, and, as well, a smelter at Alice Arm. • With the Baseline Scenario 100 % of the plan area's extreme and high mineral potential area is available to mineral exploration and development. • None of the plan area's 23 developed prospects are found in the Baseline's protection areas. ➢ Baseline Scenario – Very Positive	• The impact of the LRMP Scenario on mineral exploration and development relative to the Baseline Scenario is nominal as a result of the decision to allow mineral exploration and development in approximately 35% of the gross land area of the proposed protection areas. • Almost all of the plan area's extreme and high mineral potential area remains available to mineral exploration and development under the LRMP Scenario, and none of the plan area's 23 developed prospects are found in the proposed protection areas that would be off limits to mineral exploration and development. • Under the mid March intermediate scenario only 69% of the plan area's extreme and high mineral potential area would be available to mineral exploration and development. Under the LRMP Scenario, the available area for exploration and development is much larger, 95% would be available to mineral exploration and development. ➢ LRMP Scenario – Very Positive

Value	Baseline Scenario	LRMP Scenario
Net economic value	• Estimated annual net economic value arising from harvesting and processing North Coast timber is broadly estimated as approximately $2.3 million. • There are no comprehensive estimates for the numbers of BC hunters, anglers, kayakers, campers and boaters who venture into the back and mid-country and waters of the North Coast. Having an estimate would be a step towards creating a baseline of the net economic value attached to recreational activity in the back and mid-country and waters of the plan area. In the mid 90s, a typical per day economic rent value for recreation was $25 [Crane Management Consultants 1994]. • With the Baseline Scenario there would be some gradual degradation of recreation resources, leading to less recreational activity and net economic value. • With the Baseline Scenario there would be a degradation of net resource value attached to preservation and option values flowing from the plan area's wilderness, rainforest and population of grizzly bears. ➢ Baseline Scenario – negative impact	• Based on the timber harvest and supply projections, there is no net economic value at risk in the initial 30 years of a LRMP Scenario implementation. Net economic value for the LRMP Scenario is projected to be the same on average as for the Baseline Scenario for 30 years. • Implementation of this scenario would help to sustain the economic rents that are likely currently accruing from the King Pacific lodge operation and other high end tourism operations. Its implementation would maintain the potential for additional economic rents through the opening of an additional high end nature-based tourism lodge in the North Coast. • The LRMP Scenario's implementation would help to sustain the resources that are the basis for the North Coast's recreational experiences and avoids reductions in recreation activity through resource degradation. • Implementation helps to sustain the resources that are the basis for net resource value attached to preservation and option values flowing from the plan area's wilderness, rainforest and population of grizzly bears. ➢ LRMP Scenario – positive impact

Value	Baseline Scenario	LRMP Scenario
BC Government revenues	• Estimated annual BC government revenues arising from harvesting and processing North Coast timber are broadly estimated as approximately $9.1 million. • The sources of BC Government revenues are the following. *MPS stumpage* – MOF estimate for MPS stumpage for NC TSA is 2.18/m^3. The average 2001-2003 North Coast stumpage was $4.31/$m^3$. *Export fee* – The BC Government assesses an export fee of $1 per m^3 in lieu of manufacture against exported logs. *Other forest industry taxes* – The total estimate of other corporate related taxes is $6.95 per m^3, calculated by Price Waterhouse for a 1999 survey. This category includes logging taxes, corporate income taxes, property taxes, and sales taxes. *Provincial income taxes* – of direct forest industry employment *Sales taxes* – paid by forest industry employees • Market action campaign could be renewed if ENGOs do not endorse the North Coast LRMP report, thereby lowering demand, harvest, employment and forest industry-derived government revenues. A fall in government revenues arising from market action campaigns is not factored into the above Baseline Scenario estimate ➢ Baseline Scenario – Neutral impact	• Based on the timber harvest and supply projections, there are no government revenues at risk in the initial 30 years of a LRMP Scenario implementation. Government revenues for the LRMP Scenario are projected to be the same on average as for the Baseline Scenario for 30 years. • Under this scenario, reductions in forest industry related tax revenues (through lower harvesting compared to the Baseline Scenario) could potentially be offset or lowered by new revenues tied to businesses and projects leveraged through conservation funding. • As well, with this scenario there is the potential for avoided tax revenue losses (compared to the Baseline Scenario) from the tourism sector. ➢ LRMP Scenario – Positive impact

Value	Baseline Scenario	LRMP Scenario
First Nations	• The extremely high unemployment rate, ranging from 49 to 83%, is the most striking feature of the labour force in the plan area's First Nations communities. • Excepting commercial fishing, employment in the resource-based sectors to this point been almost a non-factor in the region's First Nations communities. • There are several important structural changes underway in First Nations access to the plan area's resources and also benefits arising from consultation and accommodation discussions between First Nations and non-First Nations users of the plan area's resources. An important element of these changes will be more mainstream employment, business and training opportunities for First Nations members. • The Baseline Scenario does not include important natural and cultural area of interest to First Nations. • As well, the Baseline Scenario, does not offer additional protection for high value salmon ecosystems. ➢ Baseline Scenario – Negative	• Small reductions in potential timber supply through the implementation of the LRMP Scenario likely will not lower forest industry employment opportunities for the plan area's First Nations population. • First Nations will probably benefit strongly with this scenario because their tourism opportunities are tied closely to nature-based tourism resources. • Implementation of this scenario would generally be consistent with the presentation of natural and cultural areas by First Nations to the NC LRMP Table. • There are substantial increases in the proportion of GLB and THLB area with high value salmon supporting ecosystems, under protection for the LRMP Scenario including Lowe-Gamble, Quaal River, Johnston, Kingkown Inlet, and Khyex. ➢ LRMP Scenario – Positive impact

Value	Baseline Scenario	LRMP Scenario
Communities	• Prince Rupert's population accounts for approximately 90% of the total plan area population. Its population peaked in the mid 90s and slipped by approximately 15% over the 1996-2003 period. A steady stream of economic crises has spurred the outflow of residents seeking better economic prospects in the Lower Mainland, Okanagan and Alberta. • The largest basic sector in the plan area economy and therefore the main driver of the plan area economy is currently the public sector, which includes First Nations, local, provincial, federal, school board and hospital staff. They account for almost half of basic sector employment. Tourism is the largest private sector employer with approximately 22% of basic sector employment, followed by the fishing sector, which includes the wild fishery, aquaculture and fish processing. • A consultant for the conservation sector estimated there was potential for up to 808 new resource-based jobs in Prince Rupert. Although the study's output also concluded there was a need for almost 1,000 jobs in Prince Rupert, some opportunities, such as the new container facility or a re-opening of the NSFP pulp mill, weren't part of these projections. This study must be considered as high level and subject to further research, but it indicates potential for resource-based job growth. ➢ Baseline Scenario – Negative impact	• The LRMP Scenario will be a major force in protecting the plan area's employment base and its expected growth (as well protecting its natural environment). • There is a net employment gain arising from implementation of the LRMP scenario (goes beyond zero net employment loss). • No community wealth loss is anticipated with a LRMP Scenario implementation because of zero net job loss. ➢ LRMP Scenario – Positive impact

2. INTRODUCTION

2.1 PURPOSE

This report is a socio-economic analysis (SEA) of land and resource management alternatives that the North Coast Land and Resource Management Plan Table and Government Technical Team are discussing and analyzing. It was undertaken in accordance with the SEEA methodologies outlined in the Ministry of Sustainable Resource Management documents entitled *Socio-Economic and Environmental Assessment for Land and Resource Management Planning in British Columbia: Guiding Principles* [Pierce Lefebvre February 2002] and *Socio-Economic and Environmental Impact Assessment for Land and Resource Management Planning in British Columbia* [Holman and Terry November 2001, Pierce Lefebvre July 2003].

2.2 METHODOLOGY

For this assignment, a multiple accounts assessment of the socio-economic and environmental implications of four land and resource scenarios was made for six accounts at two geographical levels. The following table presents the SEEA framework that was employed.

Table: 2-1 SEEA Frames, Techniques, Indicators, Sectors and Geographic Levels

Frame	Analysis Techniques	Indicators	Sectors	Geographic Levels
Economic Development	Economic impact GIS area analysis Competitive strategy	Direct, indirect & induced employment (PYs); employment income; cost of production; resource abundance; competitiveness	Forest industry, tourism and recreation, mineral exploration and mining[2]	Province and North Coast plan area
Net Economic Value	Benefit-cost analysis	Economic rent	Forest industry, tourism, environment	Province
Community	Social impact	Employment change; population; occupational income; community wealth		North Coast plan area
First Nations	Economic impact GIS area analysis	Employment Resource access & protection	Forest industry, tourism	North Coast plan area
Government Finances	Fiscal impact	BC Government Revenues (taxes, royalties, etc.)	Forest industry	Province
Environment	Environmental risk assessment (ERA) using GIS area analysis & North Coast Landscape Model	Resource abundance	Coarse filter biodiversity, ecosection, BEC variant, grizzly bear, black bear, mountain goat, marbled murrelet, moose, northern goshawk, tailed frog, rare and threatened ecosystems, aquatic and riparian	North Coast plan area

[2] The mandate of this project did not include marine resources so potential impacts on commercial fishing and aquaculture were not examined.

2.3 NORTH COAST LRMP

The BC Government established a comprehensive approach to land use planning under the umbrella of the Coast Sustainability Strategy in April 2001, which includes participation in and/or sponsorship of the following initiatives.

- North Coast, Central Coast and Queen Charlotte Islands LRMP processes
- Coast Information Team, and its efforts to develop information and analyses in support of ecosytem-based management
- agreements and economic measures with First Nations on resource management
- coastal marine planning (Chatham Sound Integrated Coastal Plan on the North Coast)
- Coast Sustainability Trust

The focus of the Coast Sustainability Strategy is in the economic diversification of coastal areas, and particularly helping to create new economic opportunities for First Nations [BC Ministry of Sustainable Resource Management April 2002]. The following table[3] briefly sets out the parameters of the North Coast LRMP process.

Table: 2-2: North Coast LRMP scope

Within the mandate of the LRMP:	Outside of the mandate of the LRMP:
Terrestrial land mgt planning (how to best use and manage land and resources)	Tenure (who receives licenses or leases on crown land)
Integrates First Nations interests as they relate to land use and management	Treaty. First Nations rights and title are addressed through tripartite treaty process.
Foreshore Log dumps Marine conservation areas associated with terrestrial parks	Coastal Issues: Aquaculture Offshore oil and gas Federal marine protected areas Management of marine resources
Provides guidance to statutory decision makers	Doesn't make statutory decisions (e.g., setting AAC)
Considers policy and can recommend changes to policy	

The NC LRMP process was initiated in February 2002 and a draft LRMP plan was submitted a little more than two years later, in April 2004. The main stages and timeline of the NC LRMP process are shown in the following exhibit.

[3] Excerpted from the draft NC LRMP introduction chapter

Step	*Timing*
1. Process Initiation	Feb. – Mar. 2002
2. Situation Assessment	Feb. – Dec. 2002
3. Scenario Development and Analysis	Sept. 2002 – Dec. 2003
4. Agreement Negotiation	May 2003 – March 04
5. Plan Ratification and Approval	Mar. - June 2004

The BC Coastal areas are the subject of several important planning and policy undertakings that will have tremendous influence on the ecological and economic wellbeing of the region. The aforementioned Coast Sustainability Strategy is but one set of measures.

This attention is both heartening and daunting, the latter because of the rapid change, overlapping impacts and outcomes and time demands for stakeholders and decision-makers. The former because it creates opportunity and hope for accelerated positive change. The following table gives an overview of these several ongoing and often linked initiatives and processes.

Table: 2-3: Interlinked planning and implementation processes

Initiative	Process	Outputs	Forum	Participants
BC Coastal Framework Agreement		First Nations Land Use Plans		Gitga'at, Haisla, Gitxaala, ATT, Metlakatla, Kitsumkalum, Kitselas
	Government-to-Government Negotiations		Tsimshian Stewardship Committee	Gitga'at, Haisla, Gitxaala, ATT, Metlakatla, Gitxaala, Nisga'a, Kitsumkalum, and Kitselas
	Joint Solutions initiative		Joint Solutions Project	Rainforest Solutions Project (ENGO caucus) – ForestEthics, Greenpeace, Rainforest Action Network, Sierra Club Coast Forest Conservation Initiative (company caucus) – Canfor, Interfor, Norske, Western/Doman, Weyerhaeuser
	North Coast Land and Resource Management Plan (LRMP)	LRMP	LRMP Table	Gitga'at, Haisla, Gitxaala, ATT, Metlakatla, Gitxaala, Nisga'a, Kitsumkalum, Kitselas and Tsimshian Stewardship Committee, Large co. forestry, small co. forestry, tourism, mining, BC Govt., local govt., local Econ. Develop., ENGOs, recreation

Initiative	Process	Outputs	Forum	Participants
BC Coastal Framework Agreement (cont'd)	Conservation Investments & Incentives Initiative (CIII)	Recommendations to participants	CIII Forum	BC Govt., Rainforest Solutions Project, philanthropic foundations
	Gitga'at-Kitasoo EBM Pilot Projects		Gitga'at-Kitasoo Protocol Implementation Team	Gitga'at, Kitasoo/Xaixais, Interfor, Western Forest Products
	Developing Scientific Information on Ecosystem Based Management	EBM Planning Handbook, Hydroriparian Guide, and several analytical pieces	Coast Information Team	Management Committee with representatives from the provincial government, First Nations and stakeholders and co-chaired by the provincial government and First Nations
Forest Industry Planning	Forest Revitalization Plan	• market pricing system • results-based FRPA • Forestry Innovation Program • timber rights reallocation • cut control rule changes • eliminating appurtenance • tenure transfer penalty removal • community salvage licence • community forest licenses		MOF
Coastal /marine planning	Chatham Sound Coastal Plan	Coastal resource management plan		MSRM
Tourism planning	Cruise British Columbia Initiative	BC Coastal Cruise Ship Strategy infrastructure development (cruise ship terminals)	BC Ports and Destinations Group	BC Government, Port of Vancouver, Prince Rupert Port Authority, Port of Campbell River, Greater Victoria Harbour Authority, and Western Economic Diversification
Fisheries planning	Integrated Fisheries Management Plan (IFMP)			DFO
	Local interests		Skeena Fisheries Commission	Various First Nations
Treaty Negotiations	BC Treaty process	Agreement - in - Principle negotiations (stage 4)		Tsimshian Tribal Council, BC Government, Federal Government
	Turning Point Initiative			Gitga'at, Haida, Haisla, Kitasoo/Xaixais, Metlakatla, Oweekeno, Heiltsuk
	Interim Measures	Non-replaceable forest license and revenue sharing		Gitga'at, Haisla, Gitxaala, ATT, Metlakatla, Gitxaala, Nisga'a, Kitsumkalum, Kitselas

2.4 PLAN AREA

The North Coast LRMP area is bounded by Hecate Strait in the Pacific Ocean to the west and the Coast Mountains in the east. The Skeena River bisects the mainland portion of the plan area. In total the North Coast LRMP plan area covers approximately 1.7 million hectares. Its population in 2001 was approximately 17,000. The following maps show the plan area's provincial location, boundaries and communities.

The North Coast plan area comprises approximately 90% of the North Coast Forest District. The areas excluded from the forest district are the following.

- Princess Royal Island and, part of Tree Farm License (TFL) 25 on the mainland, which are considered part of the Central Coast Land and Coastal Resource Management Plan area (CC LCRMP).
- Nisga'a Lands, comprising 58,068 ha in the north eastern part of the plan area.
- Some Skeena River islands, which were addressed in the South Kalum LRMP.

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2.5 SCENARIOS

An important role for a SEEA is to provide information to the LRMP Table on the implications of alternative management choices. Two scenarios were developed for this analysis, a LRMP Scenario and a Baseline Scenario.

Based on LRMP Table decisions about land and resource management, especially discussions about designation of new 'protection' or 'natural and cultural' areas, the LRMP's Government Technical team (GTT) assembled a LRMP Scenario as the subject for socio-economic and environmental analyses. It is based on the North Coast LRMP Table's agreement-in-principle (AIP) that was developed at its March 26-28 meeting.

As per the requirements of its terms of reference, the North Coast LRMP Table adopted a set of ecosystem-based management (EBM) principles to guide its planning process[4]. The goals, objectives, and targets in the North Coast LRM Plan provide specific guidance for land and resource managers about application of EBM principles to the North Coast planning area. In developing the management direction for the plan, the planning table was guided by best available science and local and traditional knowledge, including First Nations land use plans, the Coast Information Team's EBM Handbook and other reports, research and analysis by the North Coast GTT, and provincial experts in various resource management fields.

As per MSRM's SEEA methodology a Base Case was analyzed to describe the initial starting point for the planning process, herein called the "Baseline" or "Baseline Scenario". For this project, it is considered to be the current set of management directions and rules, including the current amount of protection areas. *It is important that this scenario be considered only a baseline for analysis and represents neither a status quo option nor an Ecosystem-Based Management (EBM) alternative that is under consideration for future implementation by the BC Government.* The sole purpose of analyzing the Baseline Scenario is to specifically inform Table and GTT representatives about the relative socio-economic and environmental benefits and risks that are likely to arise from each of the proposed management scenarios.

[4] This approach is consistent with the terms of reference for the NC LRMP and the *General Protocol Agreement on Land Use Planning and Interim Measures* signed in 2001 between the Provincial Government and signatory First Nations. The vision statement for the LRMP affirms this focus: "…The plan will strive to protect, enhance and rehabilitate resources. The plan will also strive to increase economic opportunities and to reflect the diversity of the plan area. It will do this *through the use of an ecosystem-based resource management framework* and through involvement of stakeholders in a balanced and consensus-based process."

The following table summarizes the analyzed scenarios.

Table: 2-4 SEEA Scenarios

Name	Protection Area Description	Share of Gross Land Base	Fine Filter	Old Seral Representation Targets
Baseline Scenario	Current protection areas	3%	Current management	Current management
LRMP Scenario	Current protection areas + new protection areas under discussion at March 26-28 Table meeting	36%	Draft LRMP Fine Filter Parameters	old seral representation targets: 30% - common BEC AUs and 70% - uncommon BEC AUs

3. FOREST INDUSTRY ECONOMIC DEVELOPMENT

3.1 BACKGROUND[5]

Timber Supply

The Chief Forester set the North Coast TSA's AAC at 573,624 m^3 in January, 2001[6], a 4.4% reduction from the former AAC of 600,000 m^3.

Timber Harvest

The North Coast TSA's timber harvest has been approximately three-quarters, on average, of its AAC over the past decade. The following table shows actual billed volume averages over the 1994-2003 decade, the percentage of AAC for these averages and the percentage distribution of the harvest by species. The 10-year average harvest is approximately 446,000 m^3 and the 5-year average harvest is about 5% less at approximately 425,000 m^3, indicating a long-term average harvest in the 425-450,000 m^3 range.

Table 3-1 North Coast TSA Harvest Volume 1994-2003 (m^3)

Year	Harvest Volume (m^3)	% of AAC[7]	Percentage distribution of harvest by species (%)				
			Cedar	Cypress	Spruce	Hemlock	Balsam
3 year average	433,146	75.4	40	6	14	25	15
5 year average	425,064	72.8	34	5	14	29	19
7 year average	427,108	72.6	31	4	14	32	19
10 year average	445,829	75.3	26	3	13	36	21

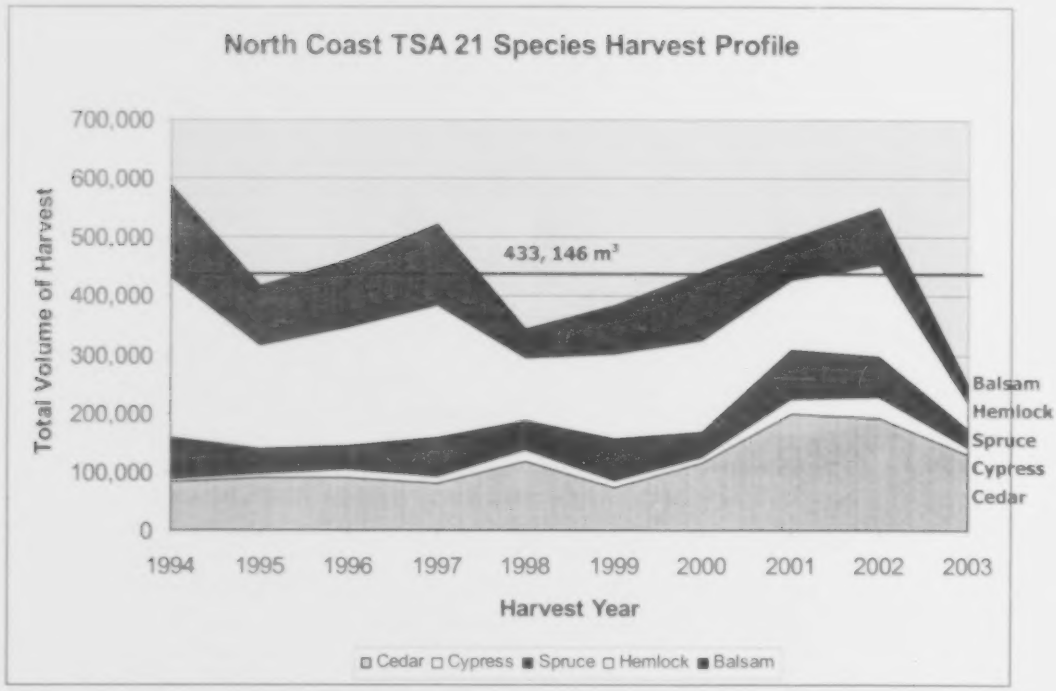
Source: BC Ministry of Forests and BC Ministry of Sustainable Resource Management

The following chart shows the upsurge in demand for North Coast cedar fed by American house building and renovation and the decline in demand for the TSA's hemlock and balsam (HemBal) led by the weakened Japanese market over the past decade. The harvest volume by species is represented relative to the 3-year average harvest level.

5 As previously mentioned the plan area includes approximately 90% of the North Coast TSA. The industry analysis of this section is largely derived from an analysis of TSA data as important pieces of information are not available on the slightly smaller plan area basis; they are only available on a TSA basis. In a few instances, analysis is undertaken on a plan area basis, an example is THLB area (ha).

6 On July 3, 2002, the Chief Forester temporarily reduced the AAC by 27,000 m^3 until the area referred to as the Central Coast Designated Area in BC Reg. 115/2002 (Princess Royal Island) ceases to be a designated area.

7 The percentage of AAC calculation is based on 600,000 m^3 / year over the1994-2000 period and 573,624 m^3 / year over the 2001-2003 period.



In the short-term, there is an imbalance between the TSA's species profile and market demand by species. The capability of the TSA's cedar inventory to meet what appears to be a continuing strong demand is not known at this time. The BC coastal forest industry and the BC government have embarked on marketing campaigns in Japan and China to improve sales of all coastal species. With new competitors for lumber markets in Japan and other Asian countries, an upsurge in their economies will not likely lead to a full restoration of historical BC sales levels.

Licensees

The vast majority of timber access rights for the North Coast TSA are currently held by entities with headquarters outside of the plan area. However, the BC Government is in the midst of implementing several measures that will have a profound impact on the North Coast TSA's timber apportionment. These measures are an outcome of the BC Government's Forest Revitalization Plan and interim measures and accommodation agreements between the BC Government and First Nations. The measures and their general implications in the plan area are the following.

Table: 3-1: Forest policy measures

Measure	Plan area implication
• province-wide 20% takeback of apportionment from licensees having a total AAC of 200,000 m^3 or more	• reduction of Interfor's North Coast TSA AAC from approximately 200,000 m^3 to approximately 40,000 m^3 • TSA harvesting rights will be dominated by market loggers, only 40,000 m^3 will be directly tied to a company with wood processing capacity
• re-distribution of the 20% takeback to BC Timber Sales (4 million m^3), First Nations (3 million m^3) and communities (1.2 million m^3)	• BC Government has awarded non-replaceable forest licenses (NRFLs) to several regional First Nations • Prince Rupert is developing a community forest proposal for submission to the BC Government
• interim measures	• government-to-government forest and revenue sharing agreements between regional First Nations and the BC Government for aforementioned NRFLs • potential regional First Nations access to additional timber harvesting rights and resource revenue sharing

Until the "takeback", Interfor held the rights to the largest portion of the TSA's AAC at approximately 35%. When the "takeback" is fully implemented, Interfor will be reduced to approximately 7% of the AAC. The current apportionment for North Coast TSA is as follows:

Table: 3-2: North TSA apportionment

Licensee	AAC Apportionment[8] (m^3)	non-AAC lump sum volume
Replaceable Licenses total	393,626 m^3 (72.01%)	
International Forest Products Ltd. (Interfor)	*205,715 m^3*	
Triumph Timber Ltd.	*139,231 m^3*	
Thomson Industries Ltd.	*29,385 m^3*	
Boyle & Dean Logging Ltd.	*19,295 m^3*	
BC Timber Sale License / License to Cut	150,126 m^3 (27.46%)	
593818 BC Ltd. (BCTS NRFL / non-AAC)		*22,000 m^3*
Forest Service Reserve	2,872 m^3 (0.53%)	
Total	546,624 m^3 (100.0%)	

Source: BC Ministry of Forests

A new apportionment may be required to account for the takeback[9] of approximately 160,000 m^3 from the Interfor license, First Nations NRFLs and NC LRMP timber supply implications. Although there is a large undercut over the past decade in the TSA, which is being used in part to

[8] Takes into account July 2001 decision of the Chief Forester to reduce the AAC pending outcome of decisions about Princess Royal Island.

[9] The BC Government created the BC Forestry Revitalization Trust to help ease the transition arising from the takeback. Information about the provisions of this trust is provided in Appendix IV.

fulfill the First Nation NRFL requirements, any new apportionment and license volume revisions are unknown at this juncture.

The following table shows the basic elements of First Nations forest and revenue sharing agreements that have been negotiated within the North Coast TSA. In Appendix I, there is more detailed information about the forest and revenue sharing agreements for the Allied Tsimshian Tribes (ATT), Metlakatla, Gitga'at, Kitsumkalum/Kitselas, Kitasoo and Haisla nations.

Table: 3-3: Forest and Revenue Sharing Agreements that impact the North Coast TSA

First Nation	Date of agreement	Volume and term of tenure	Revenue sharing
Lax Kwa'alaams / Allied Tsimshian Tribes	October 10, 2003	650,000 m^3 total over 5 years (estimated 515,000 m^3 in North Coast TSA & 135,000 m^3 in Kalum FD)	$1,370,000 / year
Gitga'at / Hartley Bay	October 15, 2003	290,000 m^3 total over 10 years	$314,000 / year
Metlakatla Indian Band	December 8, 2003	210,000 m^3 total over 5 years	$345,000 / yr
Gitxaala / Kitkatla	Offer submitted, currently under negotiation		

Source: MSRM

Coastal Timber Supply and Demand

Although AACs are managed and administered on the BC coast through TSAs and TFLs as elsewhere in the province, the functioning timber harvesting and processing marketplace is organized on a coast-wide basis. Implementation of the BC Government's Forest Revitalization Plan will serve to reinforce this coast-wide marketplace, which means price and quality competition from timber in other coastal TSAs and TFLs for North Coast timber. This characteristic will be reinforced[10] rather than weakened through expected changes in the TSA's apportionment[11], takeback reallocations, First Nation license awards, market price based stumpage and changes in cut control and appurtenance rules.

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10 Reinforcement because the greater distance from Lower Mainland and Vancouver Island fibre processing capacity, remote harvesting locations and somewhat harsher growing climate already places North Coast TSA's logs at a cost disadvantage and sometimes at a quality disadvantage.

11 Currently, Interfor has approximately 35% of the TSA's apportionment and uses its North Coast TSA timber directly or through trades to help feed its Lower Mainland mills. With changes in the TSA's apportionment, market loggers will have access to the vast majority of the TSA's timber. Although maintaining long-term relationships between market loggers and buyers is important in the coastal forest industry, thereby lessening the impact of price and quality factors, the over supply of timber and strengthening of market forces will only serve to make log price and quality factors more important in log buying decisions. As a result, feeding a mill to either maintain market share or sustain processing infrastructure will no longer be a driving factor in the North Coast TSA harvest.

A study undertaken for the Central Coast, North Coast and QCI LRMP processes described this coast-wide marketplace in detail [Pierce Lefebvre and D.A. Raffles Ltd. March 2003]. It identified a large surplus of timber fibre over demand in 2002-2003. The potential timber supply[12] from coastal TSAs and TFLs amounted to 21.4 million m^3 and the demand[13] was described at 17.7 million m^3, resulting in a 3.7 million m^3 (17%) surplus in supply. Despite reductions in AACs in coastal BC since the mid 90s, fibre demand has fallen faster because of sawmill and pulp mill closures.

Cost of Production

Coastal BC timber is relatively expensive by comparison to timber from competing regions and North Coast timber is more expensive than more southerly coastal BC timber because of its greater transportation cost to Lower Mainland and Vancouver Island timber processing facilities and remote harvesting locations. The following bar chart shows coastal BC as the most expensive lumber producing region in the world.

Table: 3-4 Costs of Producing Lumber by World Supply Region ($ per Mfbm[14])

Source: Based on PricewaterhouseCoopers data, as reported in Pearse, P. (2001) *Ready for Change*, 2001 and reproduced in Pierce Lefebvre and D.A. Raffles and Associates March 2003.

12 Potential timber supply was defined as the AAC from each TSA and TFL and historical harvests from private lands, and a 4% allowance for recoverable waste. North Coast TSA's share of the BC coast's total potential supply is 2.7%.

13 Based on a 5-year average operating rate for all primary processing mills that are either operating or temporarily closed effective March 2003.

14 Labour and other direct costs in Canadian dollars per thousand board feet (Mfbm) in 2001. Excludes cedar.

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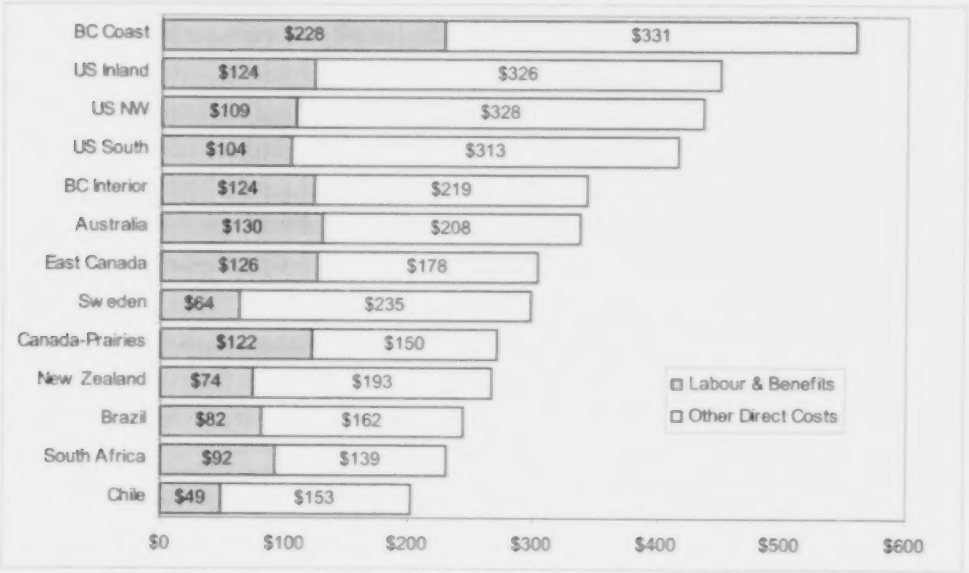

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Plan Area Forest Industry

In recent years, plan area direct forest industry employment has been approximately 0.18 PYs per '000 m^3 of harvested North Coast TSA timber, less than one-sixth of the 1.25 PYs per '000 m^3 that is available if all North Coast timber is processed in the province. Plan area forest industry employment impact is lower than the province-wide total because silviculture and harvesting on the North Coast are largely carried out from remote camps where many workers commute from outside the plan area and processing of North Coast TSA fibre occurs in the Lower Mainland, Vancouver Island and export markets. Plan area share of harvesting and silviculture employment derived from North Coast TSA fibre is estimated at approximately 33% through a survey conducted by MOF for TSR2[15]. The regional share, which includes the plan area plus Terrace and Queen Charlotte Islands, is higher but by an unknown amount.

With the change in harvesting rights currently underway in the TSA, the amount of harvesting and silviculture by plan area crews is expected to increase.

Closed since June 2001, the long-time pulp mill in Prince Rupert, currently owned by New Skeena Forest Products (NSFP), is under bankruptcy protection and may be sold as an operating entity or its equipment and machinery may be sold

Embracing a new vision: rebuilding BC's coastal forest industry

Interfor, TimberWest and Weyerhaeuser published a document with the above title in 2003 that lays out the challenges confronting this industry and their strategic vision for re-invigorating it. Their nine point vision statement is as follows.

1. ***World class mills*** → *fewer primary mills, but remainder will be world class + four to six new "small log" mills (for second growth timber)*
2. ***Vibrant, growing, value-added industry*** → *new investment in dry kilns and secondary manufacturing will help reposition Coastal forest products*
3. ***Brand-name products and expanded markets*** → *BC hemlock, Douglas fir, and western red cedar will be names of choice*
4. ***Respected worldwide for environmental leadership*** → *The Coastal industry will be a global leader in environmental management*
5. ***Successful resolution of land issues*** → *Secure access to the resource*
6. ***World-class safety performance*** → *Everyone will put working safely first, all the time.*
7. ***More full-time stable jobs*** → *There is the potential to create more than 5,000 new full-time jobs in the solid wood sector... by 2013*
8. ***Workers leaving the industry are treated with dignity and respect*** → *In the short-term, transforming the industry will mean fewer jobs*
9. ***More opportunities for small business*** → *Partnerships between large integrated forest companies and smaller, community-based contractors will be more important as we move to a more market-based system*
10. ***Forest policies that benefit all BC'ers*** → *Work with BC Government to make a success of its new forestry policies*

[15] Other North Coast resource-based sectors also operate from remote locations that many of their employees commute to from a permanent residence outside the plan area. Floating and land-based lodges, such as King Pacific on Princess Royal Island, are examples in the tourism sector. The Nature-Based Tourism study undertaken for the North Coast LRMP Table, estimated that 80% of the employees from surveyed tourism operators were non-residents of the Prince Rupert area. Minerals sector operations are often camp-based. Eskay Creek is a nearby example, and the Kemess open pit copper-gold mine at the north end of Williston Lake is another. The planned gravel operation at Swamp Creek in the Portland Channel would be a plan area example. Some non-plan area boat owners in the wild fishing and seafood industries either leave their boats in the North Coast region or travel by boat to harvest in the plan area.

at auction, which would eliminate a major destination for the region's large resource of lesser quality hemlock and balsam timber.

NSFP's Prince Rupert pulp mill is an important factor in the regional forest industry as a market for pulp logs and saw mill byproducts. In a July 12, 2002 speech to the Terrace Chamber of Commerce Terrace speech, NWBC Timber and Pulp's president described it as *"...the economic driver of the rest of the business."*

The viability of the regional forest industry is dependent on having appropriate processing capacity to mill the area's fibre profile. The former mill owner, SCI, managed a regional log flow to suit the specialized timber input needs of each of its mills; pulp logs to the Prince Rupert mill, mid-sized logs to the Carnaby mill, small logs to the Smithers mill and large logs to the Terrace mill.

Arrowhead Forest Products, which purchased the Fraser West saw mill in Prince Rupert, sold its machinery and equipment at auction in November 2003 and will operate a sort yard on the former site.

The economic development action plan prepared for the NC LRMP Table suggested the following as viable forest sector opportunities for the North Coast [Synergy Management Group Ltd. undated]

- Kiln and planer mill - A small-scale operation will create 3 to 5 direct jobs and 10 to 15 indirect jobs. A large-scale operation could employ 25 to 50 employees depending on the size with 50 to 100 indirect jobs and require a range between 10,000 m^3 of fibre for a small-scale operation to 150,000 m^3 plus for a large-scale operation

- Log sort - Revenues can range from $250,000 for a small operation that handles approximately 25,000 to 30,000 m^3 to $1.0 million for an operation, which sorts more than 100,000 m^3.

- Cedar shake and shingle mill - From $100,000 for a small scale operation to $1.0 million plus for an operation that has the capacity to produce 80 squares of standard grade cedar shingles and 20 squares of mill grade shingles per day

3.2 INDICATORS

The following table presents the indicators that were used in this project to assess forest resource impacts and gauge economic development impacts on the forest industry under the Baseline and LRMP Scenarios.

Table: 3-5 Forest Industry Economic Development Indicators[16]

Indicator	Metric	Rationale
Timber Harvesting Land Base (THLB)	Hectares (ha), cubic metres (m^3)	THLB's area and volume indicate the resource opportunity, at a broad level, for harvesting timber.
Annual Timber Supply	m^3	The annual volume of timber that is allowed to be harvested, as set by the Chief Forester, indicates the *potential* supply of timber.
Annual Timber Harvest	m^3	The volume of timber that is actually harvested (historic) or is likely to be harvested (projection) indicates marketplace demand.
Direct forest industry employment and employment income (regional & provincial)	Person-Years (PY)/m^3, $/PY, $/$m^3$	Direct forest industry employment and employment income are measures of the economic activity that the wood fibre of the plan area supports (historic) or can support (projection).
Indirect, induced & total forest industry employment and employment income (regional & provincial)	PY/m^3, $/PY, $/$m^3$	Indirect, induced and total forest industry employment and employment income are additional measures of economic activity tied to the plan area's wood fibre.
Harvesting cost per m^3	$/$m^3$	The harvesting cost per cubic metre sets boundaries on areas that are financially desirable to harvest.
Competitiveness	Basic underlying characteristics of an industry rooted in its economics and technology that shape its generic strategies for competitive success.	The potential of forest industry operations on the North Coast is determined by variables both within and outside the purview of the land use planning process. Factors, such as trade rules and exchange rate movements, are not influenced by land use planning, but some important competitiveness considerations, especially cost of production, can be affected by changes in land use status.

3.3 IMPACTS

3.3.1 Timber Harvesting Landbase (THLB)

3.3.1.1 Indicator Results

The following table presents area analysis results for the following.

- THLB area and volume in the plan's THLB area
- Percentage of the THLB area and volume in current or proposed protection areas

[16] The methodologies for developing the forest industry impact indicators and estimating forestry impacts are described in Appendix II. All employment and employment income impacts are assumed to change proportionately with changes in harvest levels throughout the planning cycle. Over time, it is reasonable to assume that the forest industry would not continually adjust its employment levels in proportion with harvest reductions. Harvesting employment may decrease in step with a harvest decline, but processing employment would react in a less linear, more incremental fashion, as local mills adjusted to lower operating thresholds.

Table 3-2: THLB Area and Volume Indicator Results

Indicator	Plan's THLB Area Total	Scenarios	
		Baseline	LRMP
		% Share in Current or Proposed Protection Areas	
THLB area (ha)	129,954 ha[17]	0%	23%
THLB volume (m^3)	60,458,622 m^3	0%	26%

Source: MSRM

3.3.1.2 Indicator Results Discussion

➢ With the LRMP Scenario, much higher shares of THLB area and volume are seen as moving from the general management zone (where logging is allowed) into protection areas than with the Baseline Scenario.

- Changes to THLB area and volume between the scenarios provides a gross indication of potential impact on the supply of the timber resource that will be available to forest industry participants.
- There is no impact on THLB area and volume with the Baseline Scenario as it does not include new protection areas.
- As will be seen in Section 3.3.3, in general there is room for reduction in THLB area and volume because the projected harvest for the TSA is approximately 25% below its AAC (effective January 2001)[18].
- Approximately one-quarter of the THLB would likely be removed through implementation of the LRMP Scenario. A qualification is the possibility for some cultural timber harvesting in First Nations designated protection areas. The location or amount of this harvesting is not known at this juncture but could add to the THLB available for harvesting at a later date.

17 The THLB figures for the plan area and TSA differ. The reported figure is for the plan area. The THLB area for the TSA is 137,125 ha.

18 This observation needs to be qualified to the extent that removals of high value timber, a result of lower harvesting cost and/or higher grade value, have a greater impact on forest industry fortunes than do removals of less valuable timber from the THLB.

3.3.2 Potential Timber Supply

3.3.2.1 Indicator Results[19]

The following table presents the estimated annual potential TSA timber supply[20] for the scenarios and the volume and percentage difference between them, by decade.

Table 3-3 Potential TSA Timber Supply Indicator Estimates (m^3)

Decade	Baseline Scenario	LRMP Scenario[21]	Difference	%difference
1st (0 – 10)	573,624	565,416[22]	- 8,208	- 1.4%
2nd (11 – 20)	573,624	507,866	- 65,758	- 11.5%
3rd (21 – 30)	573,624	456,071	- 117,553	- 20.5%
4th (31 – 40)	573,624	409,455	- 164,169	- 28.6%
5th (41 – 50)	573,624	367,655	- 205,969	- 35.9%
6th (51 – 60)	573,624	335,681	- 237,943	- 41.5%
7th (61 – 70)	516,262	335,681	- 180,581	- 35.0%
8th (71 – 80) & thereafter	462,000	335,681	- 126,319	- 27.3%

Source: MSRM and Gowland Technologies

3.3.2.2 Results Discussion

- In the first decade, the potential timber supply of the LRMP Scenario (565,416 m^3) is 1.4% below the potential timber supply of the Baseline Scenario (573,624 m^3).
  - The gap widens in the second decade to an 11.5% difference, 65,758 m^3. By the sixth decade, the gap widens considerably, the LRMP Scenario's potential supply 41.5% below the Baseline Scenario's potential supply. The long-term gap between the scenarios is 126,000 m^3. the LRMP Scenario's potential supply is projected as 27.3% less than the Baseline Scenario's potential supply.
  - *In the early decades of LRMP implementation, the addition of more LRMP protection areas has no impact on potential timber supply;* fine filter measures and old seral targets generate the potential timber supply impacts. In the long-term, the new protection areas

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19 The forecasts were prepared by Andrew Fall of Gowland Technologies under contract to BC Ministry of Sustainable Resource Management. He used the North Coast Landscape Model, which incorporates three main categories of information and assumptions: land base inventory, timber growth and yield, and management practices. The projections are for the North Coast TSA, not for the plan area.

20 These timber supply figures represent the annual target. Cut control rules would allow a certain amount of harvesting above and below this target in individual years within a cut control period.

21 This scenario incorporates proposed protection areas, 30/70 old seral growth targets, and proposed new visual management rules, aquatic and riparian netdowns and fine filter prescriptions of the LRMP AIP proposed in late March [Fall and Morgan April 2004].

22 Non-recoverable losses of 10,084 m^3 were removed from the timber supply estimates for both scenarios in each decade.

have more impact on potential timber supply than either fine filter measures or old seral targets. The next table shows the importance of potential timber supply impacts by broad LRMP measure.

Table 3-4: Impact of LRMP Measures on potential annual timber supply

Decade	Total impact of LRMP measures on potential annual timber supply	Impact of additional protection areas	Impact of fine filter measures + old seral represent-ation targets + new visuals + aquatic & riparian netdowns	Total impact of LRMP measures
	m^3 difference	% difference	% difference	% difference
1st (0 – 10)	- 8,208	0.0%	1.4%	1.4%
2nd (11 – 20)	- 65,758	0.0%	11.5%	11.5%
3rd (21 –30)	- 117,553	0.6%	19.9%	20.5%
4th (31 – 40)	- 164,169	10.7%	17.9%	28.6%
5th (41 – 50)	- 205,969	19.8%	16.1%	35.9%
6th (51 – 60)	- 237,943	28.0%	13.5%	41.5%
7th (61 – 70)	- 180,581	26.9%	8.1%	35.0%
8th (71 – 80) & thereafter	- 126,319	18.4%	8.9%	27.3%

Source: MSRM, Gowland Technologies and author's calculation

- The preceding timber supply projections were undertaken with conventional site productivity indexes. A sensitivity analysis was undertaken, using SIBEC site indexes on the TSA's timber supply under current management conditions[23], which showed that the TSA could support a much higher annual timber harvest of 884,000 m^3 (over the short- and long-term) [North Coast Government Technical Team October 2002]. This figure is approximately 310,000 m^3 greater than the current AAC of 573,624 m^3.

  In the long term, a LRMP implementation would reduce the potential timber supply based on SIBEC site indexes by about 30%, to approximately 600,000 m^3,

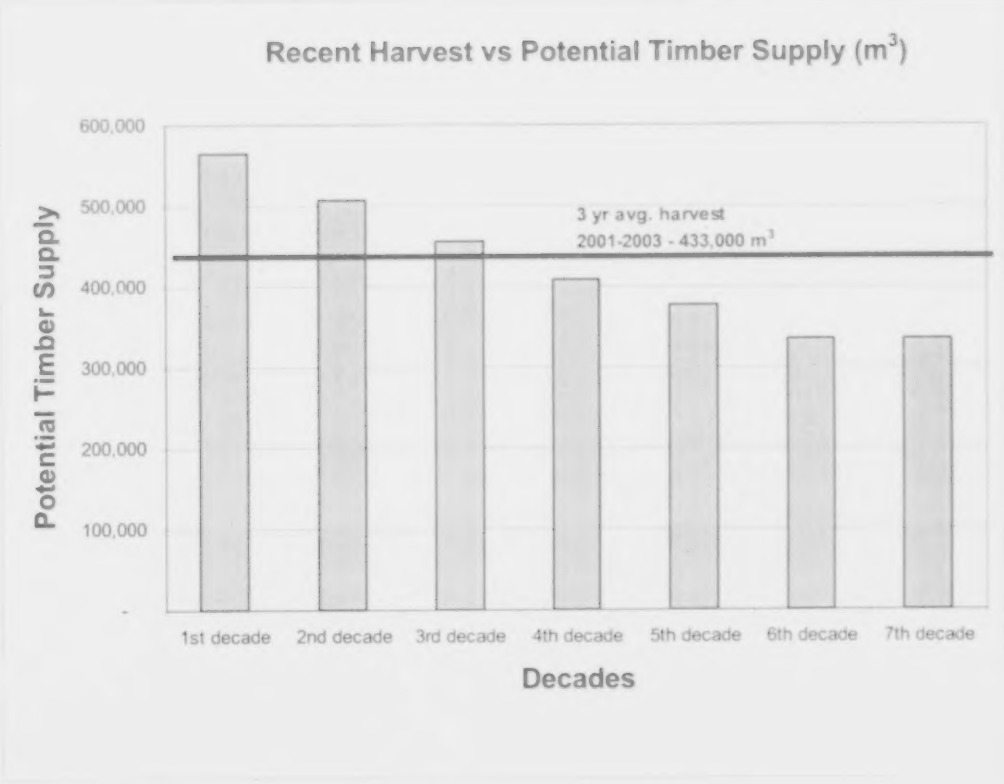
[23] There are several factors that can lead to an upward or downward pressure on timber supply. Two of the main factors include the estimate of site productivity of regenerated stands, and the area considered available for timber harvesting. Changes to these assumptions could lead to a change in timber supply impact as a result of implementing a LRMP scenario. In MSRM's Base Case Timber Supply Analysis report the following was stated, "Inventory based estimates of site productivity for old-growth stands have been proven to underestimate productivity of regenerated stands…Preliminary results of a pilot project in the North Coast TSA are suggesting the same trend…"

approximately 4.5% above the January 2001 AAC. Confirmation of SIBEC site productivity indexes[24] may lessen the longer term concern about LRMP timber supply.

3.3.3 Timber Harvest

3.3.3.1 Indicator Results

The following bar graph compares the recent annual harvest in the North Coast TSA of 433,000 m^3 against the LRMP scenario potential timber supply by decade.



3.3.3.2 Results Discussion

- The Baseline Scenario's annual harvest estimate is projected as approximately 433,000 m^3, which is the 2001-2003 average actual harvest for the North Coast TSA, and is 75% of the North Coast TSA's AAC of 573,624 m^3, effective January 2001.

[24] Significant ecological classification work is needed as a basis to apply the SIBEC estimates of site productivity. In addition, the long term timber supply impacts of improved site productivity estimates are uncertain due to limited experience with extensive managed forests on the North Coast. Nevertheless, the best available information on site productivity indicates the potential for improved tree growth to offset some of the impacts of the LRMP in future decades.

- For the initial three decades of implementation, the potential timber supply of the LRMP Scenario exceeds the recent 3-year average annual harvest of 433,146 m^3 for the North Coast TSA.

- Over the past decade, the TSA's billed harvest averaged between 425,000 and 446,000 m^3, based on 10-year, 7-year, 5-year and 3-year averaging.

- A shortfall between potential annual timber supply of the LRMP scenario and the expected annual harvest does not occur until the 4th decade of implementation. While the LRMP Scenario does not have substantial impacts when compared to current average harvest levels of the last decade, the timber supply impact assessment shows that it would reduce timber supply by 27% over the long term. Hence, the impact analysis suggests that its implementation would reduce flexibility of forest operations by reducing access to timber in the longer term.

- This shortfall is premised on a timber supply estimated with conventional site indexes. As mentioned in the previous section, the application of SIBEC site indexes generates a much higher annual potential timber supply level for the North Coast TSA, approximately 600,000 m^3, which is well above the historical 433,000 m^3 harvest level.

3.3.4 Forest Industry Employment

3.3.4.1 Indicator Results

Projections of forest industry employment that would be supported by the harvest of North Coast TSA wood fibre[25] are presented in the following table[26].

[25] The estimates represent employment tied to harvesting and processing of timber from the TSA only. The estimates do not include employment of North Coast residents arising from harvesting or processing of fibre from outside the TSA. The Woodflow Analysis report (Pierce Lefebvre and D.A Raffles March 2003) provides a detailed analysis of the concentration of wood fibre processing in the Lower Mainland and Vancouver Island and the far flung coastal transportation network that moves logs to these mills from the north coast, central coast, Queen Charlotte Islands, Vancouver Island and southeast BC. Mills that process North Coast TSA fibre also process fibre from other BC Coastal and Interior locations.

[26] A more detailed, decade by decade presentation of forest industry employment impact estimates is given in Appendix VI.

Table 3-5: Forest industry employment impacts

Forest industry impacts	Baseline Scenario Potential Harvest In 1st thru 6th decades	Current Harvest (2001-2003 annual average)	LRMP Scenario			Employment Impacts		
			Potential Harvest in 1st Decade	Potential Harvest in 3rd Decade	Potential Harvest in 4th decade	1st decade	3rd decade	4th decade
Actual or potential harvest (m^3)	573,624	433,000	565,416	456,071	409,455	Jobs at-risk	Jobs-at-risk	Jobs-at-risk
Plan Area Employment (PYs)								
Current Direct	103	78	102	82	74	0	0	4
Indirect/ Induced	29	22	28	23	21	0	0	1
Total	132	100	130	105	95	0	0	5
Province-Wide Employment (PYs)								
Current Direct	667	491	656	520	462	0	0	29
Indirect/ Induced	821	594	779	631	556	0	0	38
Total	1,487	1,085	1,464	1,151	1,018	0	0	67

3.3.4.2 Results Discussion

➢ Based on the timber harvest and supply projections, there are no jobs at risk in either the plan area or other parts of BC in the initial 30 years of a LRMP Scenario implementation. Jobs are not at risk from timber supply changes until the fourth decade, when possibly four direct forest industry jobs at the plan area level and 29 at the province-wide level are at risk.

- An under supply of timber below the recent historical harvest is the trigger for placing forest industry employment at risk. For the initial three decades of the LRMP Scenario, potential annual timber supply exceeds the recent historical harvest of 433,000 m^3. Jobs at risk are defined as the difference between employment that would be supported by the recent annual historical harvest and the potential annual timber supply for the LRMP Scenario. When potential supply for the LRMP Scenario exceeds the 433,000 m^3 level (as it does in the initial three decades), no jobs are seen to be at risk as this volume is projected to be harvested over the long-term whether or not more timber supply volume is available. When the potential timber supply of the LRMP Scenario dips below 433,000 m^3, as it begins to do in the 4th decade of implementation, then jobs start to become at risk. At this point four direct forest industry jobs in the plan area become at risk.

- There are three important caveats to the preceding estimates. One is that the employment estimates are based on changes in timber supply only. They do not account for potential employment losses arising from reduced economic operability. LRMP induced higher logging costs may help remove the economic incentive to harvest some North Coast timber, leading to job losses, but this impact is tied to log prices, as well. The implications of higher costs are discussed in Section 3.5.5.

The second caveat is that job loss from market boycotts are not factored into the Baseline Scenario employment estimation. Implementation of the Baseline Scenario is likely to lead to a resumption of market campaigns directed at North and Central Coast wood products[27]. *As a consequence, there is employment at risk with the Baseline Scenario in the short-term*[28] *so a LRMP Scenario implementation would likely help avoid job loss due to a resumption of market boycott campaigns.*

New market boycott campaigns would be felt sooner and more deeply than with the pre-2001 market campaigns because of retail and wholesale buyer familiarity with "Great Bear Rainforest" issues and growing and deepening consumer interest in sustainability issues, factors that were not as strong in the earlier market action campaigns.

The third caveat is that a timber supply estimation incorporating SIBEC productivity indexes would produce a potential timber supply under the LTMR Scenario that was well above the historical harvest, thereby suggesting no employment at risk, even in the long term.

- Although processing employment is shown at risk in the above estimation (and in the presentation of Appendix VI), it is more likely that only local harvesting and related silviculture employment are at risk from a reduction in North Coast TSA timber supply. This situation arises because of three factors: (1) an excess of potential wood fibre supply over demand in coastal BC; (2) the anticipated North Coast TSA reduction is relatively small[29]; and (3) there is no current local processing of TSA logs. A reduction in North Coast fibre supply could be compensated for by an increase in harvesting from elsewhere on the BC coast, leading to increased harvesting employment elsewhere on the coast and sustained wood processing jobs.

- The historical harvest of 433,000 m^3 represents an undercut of approximately 141,000 m^3 from the January 2001 AAC of 573,624 m^3 is projected under a business-as-usual scenario. If the full AAC was harvested, there would be 103 plan area PYs and 667 province-wide PYs tied to the TSA's timber. The undercut translates into 25 fewer PYs in the plan area and 176 fewer PYs on a province-wide basis.

- If the plan area's share of direct forest industry employment can be doubled from 0.18 to 0.36 PYs per '000 m^3 of harvested timber, the resulting potential impacts would more than offset[30] the employment at risk from a reduced timber supply[31]. Doubling the

27 The market campaign risk to Baseline Scenario employment is not shown in Table 3-5.

28 For a discussion of economic risks from a resumption of market boycott campaigns see Append ix D of Holman, G. and Enemark, G, (July 2001) *Socio-Economic Assessment of Central Coast LCRMP Phase 1 Framework Agreement.* Prepared for BC Ministry of Competition, Science and Enterprise.

29 The 2003 gap between potential timber supply and demand on the coast was estimated at 3.7 million m^3 (Pierce Lefebvre and D.A Raffles March 2003). The shortfall on the North Coast between the LRMP Scenario's timber supply and the projected harvest is 17,000 m^3 and between the LRMP Scenario and the TSA's January 2001 AAC is 158,000 m^3. As mentioned in the background section, and Appendix III, wood processing supply on coastal BC has seen severe reductions and further reductions in processing capacity are expected as second growth timber comes on stream and coastal forest companies adjust costs to meet demand.

30 Direct employment increase of approximately 75 PYs, plus additional indirect and induced jobs.

31 The long-term timber supply of about 336,000 m^3 would support approximately 60 PYs of direct forest industry employment, 18 less PYs than if 433,000m^3 per year is harvested.

dependency on local timber supply is consistent with current initiatives to establish more direct local involvement in forest tenure arrangements, such as: Non-Replaceable Forest Licenses (NRFL's) and longer term tenure agreements negotiated with local First Nations, a reallocation of the 20% volume takeback from major licensees and reallocation to First Nations, small business forest operators and other market-based opportunities, and possibly through small area-based tenures such as woodlots or a community forest proposal currently being considered in and around the communities on the North Coast.

- In terms of foreseeable employment, the forest industry employment at risk sets the bar for creating new positions as a result of LRMP implementation. Conservation funding[32] is one potential contributor to new employment that may be triggered through a LRMP implementation that reflects EBM concepts.

- Designating protection areas and changes in licensee apportionment and re-allocations will likely result in re-location of harvesting activity within the plan area. The North Coast industry is highly mobile and camp-based so permanent employee re-location is not anticipated.

- Manufacturing sector dependency on plan area timber supply is highly variable given the magnitude and volume of log trading between licensees on the Coast, the Vancouver Log Market, and on the export log market as well. In February 2003, the BC Cabinet approved an OIC allowing North Coast (as well as Kalum and Kispiox) Forest District tenure holders to export up to 35% of their annual harvest[33]. In the past two years, export markets have been a major source of demand for North Coast TSA logs and have helped to sustain local and other BC harvesting jobs.

- The closure of New Skeena Forest Product's (NSFP's) Prince Rupert pulp mill has had widespread impacts on the plan area and northwest BC forest industry. In the absence of the wood chip and hog fuel markets that this pulp mill can sustain, new sawmill investment by other than West Fraser will not occur in the northwest region, and NSFP's Terrace saw mill will not re-open[34].

  If the NSFP pulp mill re-opens (and uses the same amount of North Coast fibre as in the late 90's), and a new sawmill was constructed in Prince Rupert (that consumes a similar amount of North Coast TSA fibre as did the defunct West Fraser mill) there would be 96 additional PYs of direct forest industry employment in the plan area tied to TSA

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32 There is no agreement on conservation funding at this time. See Appendix V for information on proposed conservation funding.

33 OIC#121 is due to expire on February 12, 2005 and is reviewed annually. The Government of BC receives $1/m^3$ fee in lieu of manufacture from exporters. Tenure holders are currently exporting an estimated 15-20% of their harvests. Between the mid 80s and 1992, there were several OICs, often called "market logger" OICs, which allowed smaller operators to export about 15% of their harvest (subject to certain restrictions).

34 Re-opening of SCI/NSFP, currently in bankruptcy protection, is subject to many variables and there is no clear direction on its future at this juncture. Since it is currently closed and in bankruptcy proceedings, the estimates in this presentation were made on the basis that this pulp mill does not re-open but this modeling assumption should not be interpreted as the author's conclusion that the mill will not re-open. It is a very valuable asset and of great importance to the revitalization of the northwest BC economy.

timber[35]. The NSFP/SCI pulp mill is not reliant on North Coast TSA timber. In the late 90s, the mill derived only a small portion (approximately 4%) of its wood fibre supply from North Coast TSA related sources.

Even though the SCI/NSFP mill is shuttered and the West Fraser saw mill and chipper was closed in 2000 and dismantled and sold at auction in November 2003, some residents of the plan area continue to derive at least part of their livelihoods from North Coast TSA timber, while others are possibly working in other interior or coast regions such as QCI or in the Terrace-Kitimat area.

3.3.5 Harvesting Cost

3.3.5.1 Indicator Results

The harvesting cost indicator results are as follows.

Table 3-6: Harvesting Cost Estimates ($/m)

	Woodshed Analysis[36]	Fraser Reach	Clayoquot
Total harvesting cost	$97/m^3	~ $111/m^3	-
Additional cost for EBM	-	$6.86-8.86/m^3	$12.85/m^3

3.3.5.2 Results Discussion

➢ Definitive information on the harvesting cost increment of implementing the LRMP Scenario is not available at this juncture but the range could be between $3 and $13 per m^3 and will depend on application of LRMP/EBM Handbook standards and local conditions.

- Triumph Timber, in conjunction with the Gitga'at First Nation, estimated an additional cost of $6.86-8.86/m^3 for implementing EBM in Fraser Reach blocks: re-engineering costs, $4.50/m^3 for capital infrastructure spread over smaller volume (additional retention led to 18.4% volume decrease over FPC-based harvest); $2-4/m^3 for yarding around retention areas; and $0.36/m^3 for additional planning costs. Total harvesting and transporting cost was approximately $111 per m^3. *The pilot project was undertaken prior to the finalization of either the EBM Handbook or North Coast LRMP so does not reflect an expected cost for implementation of either of these documents.*

- For its Coast Appraisal Manual that guides stumpage calculations, BC MOF has proposed a cost allowance of $12.85/m^3 for Clayoquot Sound harvesting based on a survey of industry costs. This harvesting cost experience in Clayoquot Sound reflects a decade of industry operations considering science-based management objectives,

[35] Of course, there would be much more employment than 96 PYs if the pulp mill re-opened and a new saw mill was built as the pulp mill alone employed in about 800 in 2000.

[36] Author's calculations from data presented in Major Forest Licensee Sector, North Coast LRMP (September 2003) *Woodshed Analysis for the North Coast LRMP.*

processes and practices. The cost continues to be recognized as Specified Operation 4.4.4, Clayoquot Sound Operating Costs, in the new MPS stumpage system that came into effect on February 29, 2004[37].

- The draft North Coast LRMP and EBM Handbook allow for management flexibility to take account of negative economic circumstances, so a less costly version of EBM harvesting practices may be allowed in certain watersheds where costs are high under current practices. If the Clayoquot allowance of approximately $13/m^3$ represents an upper boundary and the Fraser reach pilot experience of about $8/ m^3$ is a mid-point then $3/ m^3$ could be a lower boundary cost increment.

- The question of whether higher LRMP induced costs will shrink the economically operable area is tied as well to log price levels. If North Coast LRMP EBM measures result in significantly higher costs to operators, then forest stands that are currently operable may become uneconomic to harvest in low price periods and risk to forest industry employment could be higher than presented in Section 3.3.4[38].

  There is a general lack of coast-wide experience with either EBM or North Coast LRMP logging practices. There may be harvesting strategies that can limit or offset EBM related cost increases[39] over time.

- North Coast average harvesting and transportation total cost of $97/m^3$ is based on an analysis of harvesting and transportation requirements for each of the North Coast's landscape units by the TSA's major licensees [Major Forest Licensee Sector, North Coast LRMP September 2003]. Their harvesting cost analysis used Coast Appraisal manual unit costs[40] plus cost parameters for road requirements, haul distances and relative percentages of helicopter and conventional harvesting across the THLB.

  The reported $97/m^3$ average cost is based on harvesting all eligible timber across all landscape units. In practice, timber rights holders will use the dictates of market demand as much as possible to determine what, where and when they log. Currently, the value of cedar likely carries the operability of the area, given market values for all species on the Coast. See the following table for a high level account of overall operability given an average logging cost of $97/m^3$. Timber rights holders are selecting harvesting situations with species and costs that are sustainable under current market conditions.

Table: 3-6: Net revenue based on average cost in 2003 for North Coast TSA

Species	Average logging cost	Average stumpage	J Grade average log market value	Q1-Q3 2003 harvest volume	Distribution	Net Value

[37] An appraisal cost allowance for implementation of EBM/North Coast LRMP is not perceived as needed by MOF because it expects industry reporting of costs, based on EBM practices, will be reflected in the new MPS stumpage system.

[38] The added cost includes additional labour cost so an employment reduction arising from less economically feasible supply could be partially offset by more employment through EBM added planning, yarding and capital costs

[39] For example, labour productivity in the BC forestry and logging industry improved by an estimated 16% over the 1993-2002 decade [Canadian Centre for Living Standards http://www.csls.ca/data/ptabln/t1-dec8-03.pdf]

[40] which are based on current management directions and rules, not EBM directions and rules

CE	$ 97.00	$ 0.93	$149.78	95,836.2	51%	$4,969,268.75
CY	$ 97.00	$ 0.41	$ 97.01	6,668.0	4%	- $2,666.76
SP	$ 97.00	$ 4.01	$ 65.66	26,204.0	14%	- $926,304.56
HE	$ 97.00	$ 2.96	$ 51.02	37,544.5	20%	- $1,837,569.55
BA	$ 97.00	$ 2.40	$ 51.02	23,436.7	12%	- $1,133,784.82
All	$ 97.00	$ 1.82		189,689.4		$1,068,943.07
					Net ROI → 6%	

- A MSRM commissioned consultant's report suggests that the proposed new visual management system would likely lead to higher harvesting costs on the basis of designating more area for visual management and using slightly more restrictive appearance requirements [Lynx Forest Management February 2004].

  As shown in the following table, approximately 7% more of the THLB would come under visual management direction with the designations proposed in the draft NC LRMP and almost twice as much of the THLB will be placed under the most restrictive visual class compared to the current VQO designations.

Table: 3-7: Current and proposed visual management systems, area and distribution[41]

Proposed Visual Management System			Current Visual Management System		
Visual Sensitivity Class	**Area (ha) of THLB**	**% of THLB**	**% of THLB**	**Area (ha) of THLB**	**Visual Quality Objective (VQO)**
Class 1 Wild Zone	14,962	12.1	6.6	8,259	**Preservation & Retention**
Class 2 Natural Variability Zone	19,150	15.5	7.4	9,162	**Partial Retention**
Class 3 Landscaped Forestry Zone	11,096	9.0	15.6	19,217	**Modification**
Unclassified or not visually sensitive	78,445	63.4	70.4	87,015	**Unclassified**

Source: MSRM

- Lynx Forest Management estimated the additional cost[42] of harvesting under the proposed visual management system in the North Coast TSA as $7.21/m^3$ over the cost of harvesting under the current visual management system [February 2004].

41 This table refers to only the visible area of the landscape defined by visual sensitivity classes of very high, high, moderate and low.

42 Incremental cost takes into account the cost for each visual class and the relative area designated for each class.

3.4 COMPETITIVENESS AND CONCLUSIONS

3.4.1.1 Introduction

The competitiveness factors that most affect the ability of current and potential forest industry businesses, which use the plan area's timber resource, to prosper are the following.

- Security of access to the area's timber resource
- Cost of harvesting and wood processing
- Timber resource quality
- Industry labour force skills, knowledge and work culture
- Manufacturing capacity to process the region's fibre profile and volume
- Innovation capacity, especially research and development capability, in silviculture, harvesting and processing sectors
- Asian market demand
- American market demand

A LRMP can affect the first two factors, security of access and production cost. In economic terms, they are supply side factors, but it can also affect the last two factors, which are demand side factors.

3.4.1.2 Market Demand

➢ The LRMP Scenario would assist in helping to "positively brand" North Coast timber in critical marketplaces. The Baseline Scenario would prove to be a hindrance in this regard.

The North Coast LRMP cannot be a vehicle for stimulating demand for its timber resource in Asian or American markets but it can help avoid a loss of some demand.

Timber is often regarded as a commodity but there are a few characteristics in temperate region old growth forest fibre that have more attractiveness for some buyers than second growth or plantation timber. These are positive factors, which the Zairi Lumber Partnership[43] is attempting to brand in Japan.

By endorsing and implementing EBM principles that are deemed acceptable amongst mainstream environmental organizations, the NC LRMP can enhance the image of North Coast timber as a sustainable product, facilitate efforts of forest companies to gain widely accepted environmental certification and of critical importance, help avoid environmental market action campaigns.

The NC LRMP can help positively brand North Coast timber in critical marketplaces. The absence of a EBM-based LRMP would contribute to "negatively branding" North Coast timber, and become a serious marketplace hindrance.

3.4.1.3 Security of Access

[43] A consortium sponsored by the federal and provincial governments and five Coastal lumber producers

➢ The LRMP Scenario would assist in enhancing security of access to the North Coast timber resource for forest industry participants. The Baseline Scenario would prove to be a hindrance in this regard.

Business investment is driven by business owners and managers understanding risk and gaining compensation for undertaking risk. Financial results can be affected through risk driven by various sources: marketplace, environment, climate, macroeconomy, regulatory and political. Certainly at this juncture, the various elements of the forest industry are not particularly profitable so risk minimization is highly desirable.

A BC Government and First Nations endorsed LRMP will give greater security of access, thereby much reducing one very important risk element in the forest sector. If security of access continues to be threatened on the BC Coast, then investors will stay away from its forest industries, focusing on other industries and/or areas that offer a more stable investment environment or higher returns in a similarly unstable investment environment.

In the absence of a BC Government and First Nations endorsed LRMP, North Coast forest industry participants have a poor investment climate, featuring "so-so" financial returns and insecure access.

3.4.1.4 Cost of Production

➢ The LRMP Scenario has the potential for leading to higher costs unless industry innovation is able to offset the additional cost of EBM directions and rules through productivity improvements or unit production cost reductions. The Baseline Scenario involves "business as usual" logging practices so by definition would not lead to EBM induced higher costs.

In the Background Section, a chart was reproduced that showed the BC Coast as the highest cost timber harvesting region in the world. The industry vision statement issued by TimberWest, Interfor and Weyerhaeuser identified the BC Coast as demonstrating the highest production cost of any region in the world for the following reasons.

- Highest labour costs in North America
- Difficult operating terrain
- Past government policies
- Lack of capital reinvestment has resulted in some obsolete and inefficient operations

These three companies see high cost as undermining the BC Coast's competitive position. Historically, the BC forest sector is commodity driven, which means high cost competitors on the industry cost curve must reduce costs in weak markets or face closure.

Initially, implementation of an EBM-based LRMP will increase harvesting costs on the North Coast, which the industry can ill afford (as it sits at the high end of saw, pulp and paper mill cost curves). The forest industry can attempt to offset these EBM induced costs over time through total factor productivity improvements.

The region's forest businesses need an overall cost structure that is competitive on a global basis, which should be addressed through the planned coastal forest management flexibility mechanisms.

Flexibility[44] is built into the planned implementation of the North and Central Coast LRMPs, which feature the principle of balancing human and ecological wellbeing, so LRMP implementation managers will be able to adjust planning and harvesting requirements to take into account difficult economic circumstances.

3.4.1.5 Impact Ratings

The following are the conclusions about the overall impact of the LRMP scenarios on forest industry economic development.

- Baseline Scenario – Positive
- LRMP Scenario – Neutral

[44] EBM Council and Turning Point/KDC/MTTC Flexibility Principle as adopted by the CCLCRMP Completion Table

4. TOURISM AND RECREATION ECONOMIC DEVELOPMENT

4.1 BACKGROUND

Introduction

Both tourism[45] and recreation[46] activities depend on the availability of a high quality land and resource base. The continued existence of functional physical resources across the land base that support tourism operations needs to be evaluated within the context of the proposed land use changes.

Based on the Base Case analysis, it is estimated that tourism accounted for approximately 1,300 direct jobs for North Coast residents in 2001. The sector accounted for an estimated $21 million in direct tourism employment income of plan area residents[47], making it the second largest sector in the local economy[48].

The limited data on North Coast tourism indicates a static or declining trend in *conventional* visitor travel (as expressed in road, ferry and air traffic to and from Prince Rupert) and Prince Rupert room revenues during the past decade. An important factor has been the decline in business visitation because of the pulp and

***TOURISM SNAPSHOT - KING PACIFIC LODGE** is a floating wilderness lodge, with its operations based near Princess Royal Island. It offers both guided fishing excursions, and ecotourism adventures such as helicopter flightseeing, kayaking, hiking, and guided spirit bear viewing trips. The lodge employs between 27 and 30 workers during the season; approximately one quarter are local First Nation members. The King Pacific Lodge has a maximum capacity of 24 to 26 guests. About 80 percent of its clientele comes from the US, and the rest from Canada and Europe. Half of the visitors come for the fishing, and the rest for the ecotourism activities. Interest in the latter is growing. Demand for the lodge did not decline in the wake of the events of September 11, 2001, as more American visitors chose to avoid European destinations and travel closer to home.*

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45 The BC Government defines a tourist as a person who visits an area overnight for either leisure, family or business reasons. In this chapter, the focus is on the leisure element of tourism, which is defined as outdoor or leisure activities where non-residents of the immediate area pay a commercial operator to participate. This analysis focuses on outdoor, backcountry tourism activity that is most sensitive to resource use. Tourist spending that generates direct tourism economic activity is spread across several economic sectors, unlike other sectors such as forestry and commercial fishing. The sectors that derive all or part of their output from tourism activity include traveler accommodation, RV parks and campgrounds, retail trade, food services, transportation services and personal services.

46 Recreation occurs where the participant (resident or visitor) does not pay to engage in outdoor activities. Thus hiking, wildlife viewing, or fishing are simply recreation activities when undertaken independently by individuals or groups, while these activities are considered tourism if they involve paying a fee to a commercial operator.

47 In addition, for the North Coast backcountry caucus, Pacific Analytics [July 2003] surveyed 13 backcountry tourism operators and found employment of 83 FTEs, but only 20% were local residents. Their compensation was an estimated $3.8 million, which includes wages, gratuities and imputed rent. About 80% of this employment and employment income can be tagged onto the resident tourism employment and employment income to yield a total for the plan area.

48 It is likely the third largest source of employment for North Coast residents since the closure of the NSFP pulp mill. Pacific Analytics estimated the employment income contribution of a sample of 13 multi-day nature-based tourism operators on the North Coast as $2.5 million [September 2003].

saw mill closures and the shrinking commercial salmon fishing industry on the North Coast[49].

Nature-based tourism has expanded, however. For example, the volume of pocket cruises to Prince Rupert and Alaskan cruise liners plying the North Coast have increased steadily during this time. The pocket cruise experience typically involves a more adventurous cruising itinerary to a smaller group of passengers compared to the large cruise vessels.

The city of Prince Rupert is currently constructing a major cruise ship terminal. With the completion of this facility in 2004, Prince Rupert will become a stopping point for the Alaska cruise line traffic and potentially, over the longer term, a participant as a port of call or point of emabarkation/disembarkation for other cruising routes. This will have two effects:

- growth in the number of cruise passengers undertaking day visits to Prince Rupert and environs; and,
- heightened awareness on the part of international travellers of the features and backcountry opportunities of the North Coast which, all too often, have been passed by en route to Alaska.

Great Canadian Railtour Company launched a Prince Rupert-based Northcoast Explorer tour train for the 2004 season[50].

Tourism Facilities

In general, tourism industry structure in underdeveloped tourism areas is typically fragmented and dominated by owner-operator facilities and services. The North Coast shares this characteristic. A telephone and in-person survey carried out on the North Coast in 2000 identified 140 tourism operators, who offer a broad range of products from accommodation and front country attractions to backcountry and fishing excursions[51]. In 2000, approximately 93 of these operators offered tours and/or experiences, primarily saltwater marine-based. These can be further delineated, as follows: the majority of saltwater marine charter operators (50 out of 65) offered saltwater fishing as the "primary" activity, and often one or more "secondary" activities such as motorized boating, scuba diving, kayaking, culture/heritage tours. The remaining 15 offered sailing, boating, or various land or marine tours as their primary activities. Those tours that were *not* saltwater-based (approximately 28) included the following activities:

- kayaking/canoeing;
- charter bus tours;
- freshwater charters;
- air tours/charters;
- hiking and mountaineering; and,

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49 Visitors to an area for business purposes are tabulated as tourists. The travel spending of some business and government sectors often converted and reported as an element of their indirect employment turns up as direct employment reports in some elements of the tourism sector.

50 In a January 26, 2004 press release Great Canadian Railtour Company (GCRC) announced that beginning May 27, it would offer a three-hour rail trip aboard a vintage train as a shore excursion to Alaskan cruise ship passengers. In May 2003, Radisson Seven Seas Cruises scheduled an arrival in Prince Rupert and GCRC ran a test run of the North Coast Explorer that sold out in less than two days.

51 Clover Point Cartographics (2000). *Forest & Fisheries Tourism Opportunities Study for the North Coast Forest District.*

- scuba diving and snorkelling.

Three-quarters of the identified tourism operators were based in Prince Rupert, however new tours and facilities with a First Nation cultural focus are proposed or being developed in some of the smaller communities (i.e. Metlakatla, Hartley Bay, Oona River, Kitkatla, and Lax Kw'alaams).

With the exception of visitors to a few higher end lodges and fishing resorts, which cater to an international market, most visitors to the North Coast are from elsewhere in British Columbia. Ministry of Tourism survey information shows that three quarters of travellers to Northwest British Columbia in 1995/96 were BC residents.

Plan Area Front-Country Tourism

Updated room revenue data shows that there has been an 11% decline in Prince Rupert's accommodation sector since 1995. This is in marked contrast with British Columbia as a whole, which experienced a 50% increase in room revenues during the same period. The decline in 1997-98 in Prince Rupert was due to impacts in the local forestry and fishing sectors, and ongoing negative image from the events of the Alaskan Ferry blockade. An improved provincial economy and growth in global demand for adventure tourism products boosted tourism in Prince Rupert in 2000.

In 2000-2002, Prince Rupert's room revenues declined from a high point of $7.9 million to $6.8 million, a drop of approximately 13 percent. North American tourism took a downturn during this time in the wake of the September 2001 disaster, and BC, too, saw sluggish revenues. The following table shows Prince Rupert accommodation trends.

Table: 4-1: Prince Rupert accommodation trends

Indicator	1995	1998	2000	2002	*% change '95-02*
City of Prince Rupert					
Room Revenue ($000s)	$7,693	$6,805	$7,874	$6,842	- 11%
Rooms[52]	795	700	859	752	-5.4%
British Columbia					
Room Revenue ($millions)	$999.45	1,206.09	$1,442.09	$1,506.19	+50%
Rooms[53]	n/a	n/a	93,712	92,250	

Source: BC Stats

In the first half of 2003, British Columbia and Prince Rupert both saw significant declines in the number of visitors, with corresponding depressed room revenues. This was driven by fallout from the SARS scare, and a decline in US travel demand in the wake of the Iraq war as well as the depressed SUS. Tourism economic results turned the corner in the BC industry starting in July 2003.

52 1995 and 1998 are estimates from *North Coast LRMP Base Case study.*

53 1995 and 1998 are estimates from *North Coast LRMP Base Case study.*

Viewscapes

Viewscapes are a vital resource for the plan area's tourism activity that LRMP decisions can directly affect.

The spectacular scenery is the principal resource for tourism and recreation on the North Coast. Previously, the North Coast Forest District had identified four key scenic areas where viewscapes are visible from communities, marine travel corridors, public use areas and highways – Douglas Channel/Gribbell Island, Inside Passage, Portland/Work Channel and Skeena River Corridor.

The zoning system outlined in the draft Visuals Management Agreement Between Forestry and Tourism for the North Coast LRMP (December 12, 2003)[54] emphasizes preserving the aesthetic values of scenic zones to sustain tourism, recreation and quality of life. Its goal is to "maintain the overall desired visual quality experience in a relative sense for the zone as a whole." This planning approach will be effective in planning overall coastal appearance in a way that is compatible with both forest sector activity and the tourism/recreation sector.

The key travel corridors of the North Coast Forest District identified in the Visual Resources Report[55] are the following:

- Inside Passage – visible to passengers of BC Ferries;
- Observatory Inlet – leads to Alice Arm and Hastings Arm and outstanding alpine views at end of inlet, but low number of users;
- Portland Canal – utilized by pleasure craft travelling to Stewart and Hyder, Alaska;
- Portland Inlet – leads to Gingolix; low numbers of viewers, and moderate expectations for naturalness;
- Chatham Sound – links Kitkatla, Metlakatla, Prince Rupert and Lax kw'alaams; important to First Nations;
- Khutzemayteen – inlet leads to important grizzly bears sanctuary; medium number of users with high expectations for naturalness;
- Work – consists of a marine corridor with no screening and a road corridor with screening along west bank; medium number of users with moderate to high expectations for naturalness;
- Quotoon – high scenic value, low number of users; and,
- Porcher Island – visible to passengers of QCI ferries and Inside Passage ferries; high number of viewers with high expectations for naturalness.

Other areas with important viewscapes include (but are not limited to):

- the Skeena River corridor;
- the west coast of the islands, which is visible to passengers on large cruise ships; and,
- the Lower Ecstal River.

54 Refer to this document for descriptions of the proposal's visual management zones.
55 Adair, B. and Davies, L. (undated). *Visual Resource Analysis for North Coast LRMP.*

Emerging North Coast Tourism Market Niches

Pocket Cruising

The pocket cruise ship industry has successfully grown in Prince Rupert since 1997. In the 2003 season, over 3,000 visitors arrived by (small) cruise ship in Prince Rupert, compared to 0 in 1997. The following table shows the trend in pocket cruise activity.

Table: 4-2: Pocket cruise activity

Indicator	1997	2001	2002	2003
No. of pocket cruise ship visits to Atlin terminal in Pr. Rupert	4	20	25-30	35
No. of passengers arriving/departing	n/a	n/a	1,744	3,034

Source: Prince Rupert Port Authority

Large Vessel Cruising Activity

At this juncture, there are 36 confirmed cruise ship stops at the new Northlands Terminal Cruise Ship berth for 2004, transporting approximately 60,000 passengers. The preliminary schedule indicates that about 20 ships will arrive in the morning or early afternoon, with stays of at least 4 hours. This time frame allows sufficient opportunity for passengers to participate in shore-based activity, although not all passengers are expected to do so.

The potential spending per passenger in the Prince Rupert region may grow to the same levels as those realized in the Alaska communities over time[56]. On average, Alaskan cruise passengers spend between $55US and $125US per person ($85C to $165C) per community. This actual value differs between Alaskan communities.

Recent Alaska cruise ship passenger volumes and per day spending by port are presented in the following table.

Table: 4-3: Cruise ship volumes by Alaskan port

Port	1997	1999
Cruise ship passenger volume		
Juneau	515,447	595,959
Ketchikan	484,258	565,005
Sitka	177,019	168,024
Haines	89,063	159,734
Cruise ship daily spending per passenger ($US)		
Juneau	$117	$125
Ketchikan	$87	$95
Sitka	$67	$70

[56] The fragmented organization of the tourism industry often makes development, which is focused on a single niche or visitor source, into an exercise that is dependent on the vibrancy of the local entrepreneurial culture and the efforts of one or two "champions" who provide overall leadership. Although the presence of cruise ship passengers presents an opportunity, its successful exploitation will require extensive and full commitment from many Prince Rupert region tourism industry participants.

Haines	$51	$55

The Prince Rupert confirmed volume for the upcoming season exceeds by 50% the projected first year passenger volume in Prince Rupert Port Authority's WEPA Business Case. The WEPA Business Case estimated that Prince Rupert would host 80 cruise ship visits and 150,000 passengers in the fifth year of the new terminal's operation and 140 cruise ship visits and 265,000 passengers in its 10th year. This growth would entail reaching approximately a 20% market share level of west coast cruises within 10 years of operations. This market share would be accomplished through participation in 30 - 50% of Seattle-based Alaska itineraries and participation in 10 - 15% of Vancouver-based Alaska itineraries.

Potential spending is expected to be $2,550,000CAN[57] in year one of operation, and $34,980,000CAN in year 10[58]. Over half of this would be on tours and attractions, with the rest accounted for by sales of retail goods, souvenirs, First Nations arts and crafts, and other expenditures.

The chief factor driving Alaskan employment impact of cruise ship travel is the number of disembarking passengers and their daily spending. The level of passenger spending found to support one on shore tourism job is approximately $60,000 [Prince Rupert Port Authority December 2001]. The following table presents estimates of employment creation in the Prince Rupert area from passengers who disembark and visit for part of a day

Table: 4-4: Estimated employment tied to off-loaded cruise ship passengers

Year	Off-loading cruise passengers (est.)	Total Spending	Passenger Spending per FTE Job	Supported employment (PY)	Supported employment (seasonal)
1	30,000	$2,550,000	$60,000	42	240
5	112,000	$14,062,500	$60,000	234	468
10	212,000	$34,980,000	$60,000	583	1,166

Source: author's calculations

If half of the first year's passengers off-load for a short stay, their spending will support approximately 240 seasonal tourism jobs. Passengers from the major cruise lines represent a major market that in the recent past have not visited Prince Rupert during their cruising vacation. The challenge will be in providing shore excursion and community infrastructure capacity that Alaska cruise ship passengers find appealing and good value. The Alaskan ports (Juneau, Skagway and Ketchikan) have been successful in developing and marketing a range of front and back country experiences of short and long duration, as well as excellent shopping facilities. Demand is so strong that at least one community is now experiencing some crowding during the summer months.

In Ray and Williams' report, it is estimated that in 2002, there were 700,0000 cruise visitors to Juneau, Alaska, and 1.1 million purchased excursions (mostly land, water and air-based tours such as flightseeing, wildlife viewing, kayaking, sportsfishing) [February 2003]. This means that a significant portion of the visitors purchased more than one excursion.

[57] $85 per day spending x 30,000 passengers (one-half of the estimated number that will be transported (of passengers) to Prince Rupert by cruise ship in 2004

[58] $125 per day x 212,000 passengers (80% of the estimated number of passengers that will be transported to Prince Rupert by cruise ship)

The North Coast will benefit from cruise industry growth if its communities can coordinate their efforts to provide diverse activities and products that can be participated in within a limited time frame and travel distance and, extended tours further afield to outstanding or unique back country sites.[59]

Cruise ship tourism is emerging as key lynchpin of the BC Government's tourism strategy. The newly formed Cruise British Columbia Initiative (comprised of federal, provincial and municipal representatives, as well as several industry participants) has completed a coastal cruise strategy that heralds the beginning of a concerted provincial approach to growing the cruise ship industry. The North Coast could be a beneficiary of this initiative if its implementation means more visitors to the Prince Rupert port.

Recreation

The updated *Recreation Resource Analysis Report*, completed in March 2003, identified 257 recreational sites, and 41 recreational polygons in the North Coast plan area.[60] Recreational sites support a range of activities such as hiking, fishing, boating and kayaking, and/or are characterized by features like historical/culture sites, beaches, hot springs, and streams. About 30 sites and 10 polygons were identified inland, largely around the Skeena River corridor. The remaining sites are located on the coastal shoreline, and accessible only by boat. Approximately half of the coastal sites are adjacent to a protected moorage or anchorage. Water sports such as beach activities, kayaking, scuba diving or boating, are the principal activity at over 55% of the sites. Approximately one half of the sites provide camping as a primary or secondary feature. These sites range from developed forest service recreation sites to sites with no development, but likely a water source and a flat area to pitch a tent.

***TOURISM SNAPSHOT - NEW PACIFICA** is a commercial boat charter company based on Dunira Island in the Dundas Island Group. The company offers a range of day and overnight fishing excursions and custom tours, including grizzly viewing. New Pacifica also offers expediting services to commercial and recreational visitors.*

New Pacifica occupies a niche as a small operator offering both fishing and eco-tourism experiences. Its products include charter fishing, kayaking, whaling, sightseeing and beachcombing experiences. It can accommodate eight passengers on its boat, or at its floathouse on Dunira Island. The owner has plans to construct a small floating lodge (with a capacity of 12 guests) during the next few years, with the objective of catering to the "high-end" soft adventure market. If successful, this would create a small number of seasonal jobs, including guide(s), cook, housekeeper and marketing.

There are seven recreation sites in the "highest use" category (i.e. 2,500 user days per year) and six sites in the next highest (1,000-2,500 user days per year). Most of the highly used sites are located near Prince Rupert or along the Skeena River on the mudflats commonly used for fishing. There is also a highly used system of trails near Hartley Bay. The sites that are more than one day's travel from Prince Rupert and the Skeena River corridor receive less use. About 85% of the sites are in the lowest use category (0-200 user days/year), showing how concentrated recreational use is around Prince Rupert.

[59] Ray, R. and Williams, P. *Potential Spatial and Management Implications of Cruise Ship Passenger Activity on the Development of the North Coast LRMP* (February 2003) Centre for Tourism Policy and Research, School of Resource and Environmental Management, Simon Fraser. Prepared for the Ministry of Sustainable Resource Management.

[60] Stoffels-VanRaalte, D. (March 2003). *Updated Resource Analysis Report.* Prepared for the North Coast Government Technical Team.

Results show that three quarters of North Coast recreational sites fall within the Recreation Opportunity Spectrum's[61] "roaded modified" and "roaded natural" classes, while only 3.1% of public recreation sites fall within the "primitive" (least developed) ROS category.

Most visits to provincial parks on the North Coast occur during the summer months, and the number of day visitors (generally BC residents) has been declining since the mid 1990s. This is due to poor summer weather in past years, and a decline in the local population.

4.2 INDICATORS

The following table presents the indicators that were used in this project to assess tourism and recreation resource impacts and gauge economic development impacts on the tourism and recreation industries under the Baseline and LRMP scenarios.

Table: 4-5: Tourism And Recreation Economic Development Indicators

Indicator	Indicator Classes & Measurement Units	Rationale
Visual Sensitivity Classification (VSC)	The VSC comprises five classes: Very High Sensitivity – Extremely important to viewers. High likelihood that public will object to landscape changes. High Sensitivity – Important to viewers. High likelihood that public will be concerned about visual alterations to landscape. Moderate – Important to viewers, and it is probable that the public would be concerned about visual alterations. Low Sensitivity – Landscape is of low to moderate interest to viewers, and small risk that public would be concerned about changes. Not Visually Sensitive Areas (NVSA) – Unimportant landscape to viewers, and little risk of public concern about visual alterations.	The Visual Landscape Inventory undertaken by the Ministry of Forests classifies and documents the viewing attributes of visible landscapes. The resulting Visual Sensitivity Classification (VSC) gauges the sensitivity of a landscape to visual change or alteration. It reflects the risk that logging or development activity will elicit social (e.g., public concerns about loss of view) or economic (affected tourism operation) concerns. Those landscapes that rank as moderate to very high visual sensitivity would be most responsive to implementing protected status, and most likely have important tourism or recreation features and values.
(proposed) Visual Management	The visual landscape zone classifications are as follows[62]: Class I: Wild Zone – ensures perception of wilderness, and visually unaltered landscapes Class II: Natural Variability Zone – some development allowed, but will blend with landscape and does not	*Visual Management Zone* categories and prescriptions were presented to the North Coast LRMP Table on December 12, 2003. This zoning system emphasizes the overall visual experience of travelling through a coastal area.[63] The zoning descriptions refer to the plan for each zone, with the objective of planning a timber harvesting regime that "ensures the

61 Recreation Opportunity Spectrum (ROS): This indicator reflects the remoteness, naturalness and expected social experience based on a site's accessibility. The classes range from primitive to urban.

62 Refer to CCLRMP, Nov.26-28 report for more detailed definitions and prescriptions.

63 This approach replaces the former system of setting visual quality objectives, which was viewscape by viewscape. Source: *CCLRMP, November 26-28, 2003 Completion Table Meeting, Chair Report.*

	alter landscape Class III: Landscape Forestry Zone – development/harvesting allowed with a carefully altered state; development evident throughout the zone but subordinate Special viewscape zone –a specific visual objective is established for the prominent viewscape as seen from a currently existing facility. This is a "static" viewing experience, in contrast with classes I to III that focus on moving through an area.	short and long term integrity of important visual areas"[64] and that is compatible with forest sector viability. As the coastal zones of the North Coast draw the most visitors and passers-by, changes in Visual Management Zones in the Plan area would have a direct effect on medium to long term visual experience, and the outlook for wilderness-based tourism and recreation.
Recreation Opportunities Spectrum (ROS)	The classes are as follows: ROS – P; Primitive ROS – SPNM; Semi-primitive, Non-motorized ROS – SPM: Semi-primitive, Motorized ROS – NR; Roaded Natural ROS – MR; Roaded Modified ROS – R; Rural	This indicator classifies the land base according to the nature of recreational opportunities. A range of classifications is used to capture landscape remoteness, wilderness characteristics, and expected type of social experience. How a landscape is classified depends on distance from roads, evidence of human use, area size and naturalness. The recreation and tourism values in those areas classed as primitive and semi-primitive are likely to be preserved in the medium to long term, due to the smaller number of users. Recreation features with less remote designations such as Roaded Modified and Rural are more accessible, however, and see more visitors and recreationists.
Commercial Recreation Tenures	number of tourism facilities (#) number of existing tenures (#) number of proposed tenures (#)	If proposed protection areas overlap with current tenures or tourism facilities, use and legal rights conflicts may arise.
Nature-Based Tourism Attributes	Area of high land and marine based wildlife viewing value (ha) Area of high kayaking and hut-to-hut hiking value (ha)	Infrastructure, physical features, routes or unique sites combine to determine the value of products like guided kayaking tours, wildlife viewing, hiking or other recreational activities. For example, while the head of Observatory Inlet provides excellent views of glaciers and icefields, the tourism value of kayaking in this area is low because of strong outflow and inflow winds.
Competitiveness	These include the following factors: accessibility – changes in status may affect accessibility to resource by road, air or water for operators; supporting features – e.g. transportation or physical infrastructure that enhance product delivery; quality of locations – does change in status necessitate a move to a less suitable location (e.g., jumping off point	The potential of tourism operations on the North Coast is determined by variables both within and outside the purview of the land use planning process. Factors such as seasonality, winds, global tourism trends, and exchange rate movements are not influenced by land use planning. But some competitiveness considerations could be affected, in the medium or long term, by changes in land use

[64] Ibid.

	for a water tour moved to outside a newly Protected area); availability of anchorage or ports; and, opportunities for linkage between products. Any one of these factors can affect an operator's cost structure or marketability. These will be addressed in a brief qualitative manner where appropriate.	status.

4.3 IMPACTS

4.3.1 Visual Sensitivity

4.3.1.1 Indicator Results

The following table presents area analysis results for the following key tourism and recreation resource indicator by scenario.

- Total area classified as "very high" and "high" visual sensitivity
- Percentage of the plan area's "very high and high" visual sensitivity classification in current or proposed protection areas

Table: 4-6: Visual Sensitivity Classification Indicator Results

Indicator	Total amount in plan area	Scenarios	
		Baseline	LRMP
		% Share in Current and Proposed Protected Areas	
Very high & high visual sensitivity classified area	252,594 ha[65]	2%	15%

Source: MSRM

4.3.1.2 Indicator Results Discussion

➢ The proportion of visually sensitive land with protection status would increase with the LRMP Scenario, thereby minimizing the risk of significant changes to important landscapes. This would mean a positive impact on the tourism and recreation sector in both the short and long term.

- Increasing the area of protected visually sensitive viewscapes would facilitate the growth of the cruise ship industry and enhance the North Coast's provincial and international reputation as a unique wilderness attraction. Greater protection would safeguard wilderness tourism and recreation growth by preserving the region's attractive coastline from harvesting and other industrial activities, as well as areas visible from nearby communities or travel corridors such as Highway 16 along the Skeena River. Continued

[65] From existing inventory

growth in tourism and recreation would continue to create both jobs and income at the regional and provincial level.

- Under the Baseline Scenario, only a small area of land deemed very high and high visually sensitive is in a protection area (approximately 2% of the GLB) and only one currently protected area is on the coast. This scenario could lead to future road and infrastructure development on visually sensitive landscapes, such as around the Inside Passage or the outside of the islands in the Hecate Strait (visible to cruise ships). There is a greater risk of public concern/response to visual disruption of these landscapes. The current Ministry of Forests Visual Quality Objectives (VQO) system is not directed at preserving viewscapes for tourism and recreation purposes. Only a small portion of the GLB is designated under the current VQO system, approximately 8%.

  Under the Baseline Scenario, none of the principal North Coast Forest District travel corridors are designated as Protection Areas. This scenario could lead to future harvesting, road and infrastructure development in the scenic zones defined earlier, such as the Inside Passage or the west coast of the islands in the Hecate Strait (visible to cruise ships). Visual disruption could limit the growth of long term tourism and recreation activity in these scenic zones, and take away from the potential to draw cruise ship visitors.

- The LRMP Scenario places more land in the key scenic zones under Protected status, thereby preserving the naturalness of some parts of important zones. This includes, but is not limited to:

  - Lowe Gamble/Alty Lake – high scenic and recreation values, bear viewing;
  - Campania Island – high scenic value; has tremendous potential for kayaking, hiking, beach activities and scenic photography; and,
  - Monkey Beach / Bishop Bay – high cultural values, high recreation value; offers views and access to Bishop Bay Hotsprings for boaters.
  - Porcher A -- excellent anchorage and recreation site;
  - Porcher B – very high recreation & visual values associated with beaches along west peninsula and in the semi-protected waters of Kitkatla Inlet;[66]
  - Goschen-Dolphin-Spicer – contains string of rocky islands and islets, and the community of Kitkatla;
  - Aristazabal Island – attractive landscape and beaches, islands and other features conducive to ocean kayaking and boating;
  - Pitt Island (Units: Red Bluff Lake, Tsimtack Lake) – high scenic values associated with cruise/ferry ships;
  - Pitt Island (Pa_aat Valley) – high scenic value associated with cruise/ferry ships.

  With 36% of the total land base protected under the LRMP Scenario, more coastal and inland scenery with a high sensitivity designation would be preserved in the long term.

- Although the LRMP Scenario ensures the greatest amount of visual protection to key scenic areas, it does not protect the following areas with high recreation/tourism values:

[66] The slopes on Porcher Island exhibiting forest landscape alterations require sensitivity in any further visual design planning.

- Marmot – North end of Portland Canal and visible from Hyder and Stewart. Visually important for communities and cruise/ferry ships and provides land access points;
- Sommerville – High visual value related to recreation. All operators that view Grizzly bears outside the Khutzeymateen do so from the Khutzeymateen Inlet in this unit;
- Union Passage – High potential. Provides protected access to the Khutzeymateen and Sommerville Unit, and the waters are extremely important for Humpback whale viewing;
- Khtada East / Kwinitsa - High visual value from the Highway;
- North Kumealon, South Kumealon, Batchelor Lakes – High visuals seen from cruise and ferry ships;
- Pitt Island (Pa_ aat East) - high visual value from cruise and ferry ships; and,
- Pitt Island (Red Bluff Lake, Tsimtack Lake) – High visuals from cruise and ferry ships.

4.3.2 Visual Management Zones

4.3.2.1 Indicator Results

The following table presents area analysis results for the following key tourism and recreation resource indicators.

- Total area for the current and proposed visual management systems by their classifications

Table: 4-7: Current and proposed visual management systems, area and distribution[67]

Proposed Visual Management System			Current Visual Management System		
Class	THLB Area (ha)	% of THLB	% of THLB	THLB Area (ha)	VQO
Class 1 Wild Zone	14,962	12.1	6.6	8,259	Preservation & Retention
Class 2 Natural Variability Zone	19,150	15.5	7.4	9,162	Partial Retention
Class 3 Landscaped Forestry Zone	11,096	9.0	15.6	19,217	Modification
Unclassified or not visually sensitive	78,445	63.4	70.4	87,015	Unclassified

Source: MSRM

[67] The data in this table refer to only the visible area of the landscape defined by visual sensitivity classes of very high, high, moderate and low. They are only for the TSA portion of the LRMP area.

4.3.2.2 Indicator Results Discussion

➢ Approximately 7% more of the THLB will come under visual management direction with the designations proposed in the draft visuals agreement and almost twice as much of the THLB will be placed under the most restrictive visual class compared to the current VQO designations.

4.3.3 Back Country Recreation Opportunity Spectrum

4.3.3.1 Indicator Results

The following table presents area analysis results for the following key tourism and recreation resource indicators by scenario.

- Total area designated as Recreation Opportunity Spectrum 1 to 3 classes
- Percentage of the plan area of ROS 1-3 classes[68] that are in the protection areas of each scenario.

Table: 4-8: Indicator Results for Recreation Opportunity Spectrum 1 to 3 classes

Indicator	Total amount in plan area	Scenarios	
		Baseline	LRMP
		% Share in Current and Proposed Protected Areas	
ROS 1-3 area	1,050,328 ha	5%	41%

Source: MSRM

4.3.3.2 Indicator Results Discussion

➢ In the Baseline Scenario, only five percent of the GLB offering areas that rank high in wilderness recreation opportunities (i.e, primitive to semi-primitive) would be protected. These include the very important Khutzeymateen grizzly reserve. Thus development and possible logging activity in other important zones that are not protected could erode the unique wilderness experience for recreationists in the medium to long term.

- Much of the North Coast LRMP is remote and fairly inaccessible, and much of the land base is accessible only by air. Areas ranked as Primitive or Semi-Primitive offer backcountry recreationists a wilderness experience generally unsullied by evidence of human use or development. These areas in ROS 1-3 classes can sustain their pristine quality in the absence of significant human incursion.

- Under the LRMP Scenario, 41% of the GLB with highly ranked ROS areas would be protected, significantly higher than under the Baseline Scenario. This includes significant portions of Porcher Island and Banks Island, and large inland tracts such as north of Observatory Inlet, the Khyex, and the upper Ecstall River. This would protect even more unique backcountry recreation sites. As tourism and recreation grows on the

[68] Class 1 – Primitive, Class 2 – Semi-private non-motorized, and Class 3 - Semi-private motorized

North Coast protection of such a large land base would be required to preserve its wilderness qualities.

4.3.4 Tourism Facilities

4.3.4.1 Indicator Results

The following table presents area analysis results for the following key tourism and recreation resource indicators by scenario.

- Total number of tourism facilities[69]
- Number of tourism facilities that are in the protection areas of each scenario.

Table: 4-9: Indicator Results for Recreation Opportunity Spectrum 1 to 3 classes

Indicator	Total amount in plan area	Scenarios	
		Baseline	LRMP
		# in Current and Proposed Protected Areas	
Tourism facilities	70	0	19

Source: MSRM

4.3.4.2 Indicator Results Discussion

➢ The LRMP Scenario places a larger share of the GLB with tourism facilities in protection areas than the Baseline Scenario.

- Under the Baseline Scenario there are no tourism facilities on the GLB with protected status whereas the LRMP Scenario has 12 tourism facilities operating in areas with proposed protection status. The following table lists the facilities that would appear to operate in areas with proposed protection status, based on the GIS area analysis[70].

[69] Tourism facilities are defined as commercial recreation tenure camps and bases, hotels, lodges, campgrounds, golf courses, museums, motels, galleries, marinas, and bed & breakfasts. The definition did not include tours and charters as their location varies.

[70] This table is not definitive because the locations of the actual location of facilities and their operations may be different than what is registered in MSRM's GIS database. Additional review of these situations is needed before making definitive statements about potential conflicts.

Table: 4-10: Tourism facilities operating in proposed protection areas

Protected Area Name	Type of Facility	Name of Facility
Aristazabal Island - Karst	Lodge	Northking Lodge / Charters
Dundas	Potential Camp	Spirit Wind Wind Expeditions Ltd.
Dundas	Potential Camp	Spirit Wind Wind Expeditions Ltd.
Europa East	Potential Camp	McGowan Sporting Adventure
Fin Island	Lodge	Big Time Sports Fishing
Goschen-Dolphin-Spicer	Bed & Breakfast	Ron Watson's B&B
Goschen-Dolphin-Spicer	Bed & Breakfast	Merle Bolton's B&B
Goschen-Dolphin-Spicer	Bed & Breakfast	Annette Woods' B&B
Goschen-Dolphin-Spicer	Potential Base	Northern Lights Expeditions Ltd.
Khtada West	Lodge	Inland Air Charters
Kitsault - Dak River	Potential Camp	Nisga'a Lisms Government
Somerville	Lodge	Haa-Nee-Naa Lodge / Silverback Fishing Adventures
Stagoo	Potential Base	Nisga'a Tribal Lisms Government
Stagoo	Potential Camp	Nisga'a Lisms Government
Stephens	Potential Base	Spirit Wind Wind Expeditions Ltd.
Stephens	Potential Camp	Spirit Wind Wind Expeditions Ltd.

Source: MSRM

- Results from a survey done on the North Coast in 2000[71] show that there were 131 existing tourism facilities on the North Coast, including front and back country facilities, and tours and charters. About 98 of the 131 operations were based in Prince Rupert. The GIS analysis done for the LRMP scenario analysis is based on facilities only, and nets out tours and charters. These results show that there are 70 facilities in the LRMP area.

- Land and Water BC indicates that there are 16 Commercial Recreation tenures in the North Coast area, and 10 applications in process[72]. Land that is designated for protection could be administered by Water, Land and Air Protection, Protected Areas Section and/or be managed in a type of partnership by the provincial government and local First Nations. The governing body and its policies regarding land use would influence all subsequent decisions about ongoing or new tenure allocation. LRMP direction in the protection chapter addresses the issue of grandfathering existing tenures.

4.3.5 Nature-Based Tourism Attributes

4.3.5.1 Indicator Results

The following table presents area analysis results for the following key tourism and recreation resource indicators by scenario.

[71] FFTOS, op. cit.
[72] February 2004

- Total area identified as high value land and marine-based wildlife viewing area
- Percentage of the plan area identified as high value land and marine-based wildlife viewing area in current and proposed protection areas
- Total area identified as high value kayaking and hut-to-hut hiking area
- Percentage of the plan area identified as high value kayaking and hut-to-hut hiking area in current and proposed protection areas

Table: 4-11: Indicator results for high value land and marine-based wildlife viewing, kayaking and hut-to-hut hiking

Indicator	Total amount in plan area	Scenarios	
		Baseline	LRMP
		% Share in Current and Proposed Protected Areas	
high value land & marine-based wildlife viewing area	29,505 ha	1%	25%
high value kayaking & hut-to-hut hiking area	602,749 ha	8%	23%

Source: MSRM

Indicator Results Discussion

➢ There is a dramatic increase in the proportion of GLB with high value nature-based tourism attributes under protection with the LRMP Scenario compared to the Baseline Scenario.

- In the cases of these activities, one of the greatest threats to areas with outstanding tourism values is that of too much traffic, and exceeding the carrying capacity. This has already been experienced on Vancouver Island, for example, where the demands of kayakers sometimes exceed the available beaches and campsites. By the same token, at least one First Nation community on the Central Coast objects to kayakers' waste in their clam beds. Thus a good combination of protection and policies are needed to ensure preservation of tourism values and their co-existence with other, local uses.

- With the minimal protection embodied in the Baseline Scenario, tourism values in some locales could be eroded in the medium to longer term, dampening tourism development on the North Coast. This depends on the specific values at risk, and protection area management policies. For example, there are a limited number of beaches with suitable features for kayakers on the North Coast. Without protection and limits on human usage, the pristine quality of some beaches or islands could be lost in the longer term as traffic grows, leading to an erosion of their tourism/recreation values.

- LRMP Scenario would protect a greater number of areas with high tourism values: Newly protected areas with particularly high tourism values would include (but are not limited to):

  - Dundas/Stephens Island – offers some of the best kayaking and small boating opportunities along the coast; has beaches, pocket beaches, coves, island, islets and other features that make it an excellent tourism destination;

- Lower Ecstall River – has moderate tourism/recreational potential for canoeing in association with the upper Ecstal River;
- Union Passage/Union Passage Marine – provides link between Grenville Channel and Squally Inlet; excellent opportunities for boating and kayaking;
- Campania Island – high recreation and tourism values for kayaking, hiking, beach activities and scenic photography
- Monkey Beach/Bishop Bay – Unique hotsprings, and safe moorage for small vessels as well as a dock, spectacular views; cultural values protection status for this area could be expected to allow a more detailed look at the level of allowable development of Bishop Bay hotsprings in conjunction with First Nations, local communities and recreationists and tourism operators;
- Porcher Island group – Contains very high recreation/tourism values associated with its beaches along the west peninsula and in the semi-protected waters of Kitkatla, as it offers the best all round area for kayaking (beginners to expert). Great potential for trail development.
- Aristazabal Island – the west coast has rugged, attractive landscape with islands, islents and beaches, pocket beaches and other features conducive to ocean kayaking and boating; high recreation values;

4.3.6 Freshwater Angling

Indicator results

The following table presents area analysis results for the following key tourism and recreation resource indicators by scenario.

- Total kilometers of high value angling waters[73] in the plan area
- Percentage of kilometers of high value angling waters in current and proposed protection areas

Table: 4-12: Angling waters indicator results

Indicator	Total amount in plan area	Scenarios	
		Baseline	LRMP
		% Share in Current and Proposed Protected Areas	
high value freshwater angling waters	914 km	9%	54%

Source: MSRM

4.3.6.1 Indicator Results Discussion

➢ More than one-half of the freshwater angling waters identified by commercial guides as "high value" is covered in current or proposed protection area of the LRMP Scenario.

[73] The reference is to freshwaters only. The data is for streams and lakes that have been reported by commercial fishing guides to BC MWLAP as angling locations

- Protection status could enhance the fish habitat and populations, and even increase harvest opportunities in these areas. Policies about tourism or recreation activity on the protected waters will determine the medium and long-term economic impact of protection.

- Under the Baseline Scenario, only nine percent of commercial guide identified "high value" angling waters are in protection areas. The share is six times larger with the LRMP Scenario.

4.4 COMPETITIVENESS AND CONCLUSIONS

4.4.1.1 Introduction

The competitiveness factors that most affect the ability of current and potential tourism and recreation businesses in the plan area are the following.

- Quality of nature-based tourism resources
- Security of access to the area's land base and tourism resources, such as salmon
- Cost of tourism experiences
- Marketing capabilities including brand names and images
- Industry labour force skills, knowledge and work culture
- Innovation capacity
- BC market demand for marine-based nature tourism
- Foreign market demand for marine-based nature tourism
- Foreign market demand for Alaska and BC coast cruising

A LRMP can affect the first two factors, quality of tourism experiences and security of access, both important supply side competitiveness factors. An LRMP can also affect the last three factors, which are demand side factors.

Many factors combine to influence the competitiveness of a commercial tourism operation. Some – like weather, consumer preferences and the exchange rate – lie outside the control of the operator. Governmental changes in land use status are also "exogenous" to a large degree and, depending on policy and location, may affect tourism operators on the cost or revenue side. The competitiveness considerations arising from the land use scenarios would be influenced primarily by policies regarding recreation and commercial tourism operations on protection lands; and, the trade-off between maintaining visual and recreation quality, and providing necessary infrastructure.

4.4.1.2 Market Demand

- The LRMP Scenario would assist in helping to "positively brand" North Coast tourism in critical marketplaces. The Baseline Scenario Scenario may lead to negative branding if there is a resumption of market action campaigns.

The North Coast LRMP cannot be a vehicle for stimulating demand for its tourism experiences, but it can help avoid a loss of some demand.

By endorsing and implementing EBM principles that are deemed acceptable amongst mainstream environmental organizations and preserving large tracts of land from development, the NC LRMP can become a vehicle to enhance the image of the North Coast as a sustainable region, facilitate efforts of forest companies to gain widely accepted environmental certification of critical importance and help avoid environmental market action campaigns against forest products that can have negative spillover effects on tourism demand[74].

4.4.1.3 Quality of Tourism Resources

- Additional protection areas, fine filter parameters, and new visual management designations and old seral representation targets will better protect critical natural attributes that underlie North Coast nature-based tourism experiences than current management.

The natural values protection features of the LRMP Scenario will allow the plan area's tourism sector to continue building visitation and revenues from its current base. The worldwide nature-based tourism segment has a strong growth trend, partly driven by empty nest baby boomers seeking unconventional, active tourism experiences. The North Coast tourism sector should grow in lockstep with the increasing worldwide demand for nature-based tourism. The area has additional physical capacity to accommodate expected visitation growth driven by worldwide demand for nature-based tourism experiences[75]. Lack of protection of the plan area's attractive tourism resources would not eliminate the plan area's nature-based tourism but it would restrict its growth from its current visitation and revenue base.

Approximately 37% of the THLB was covered by the proposed visual class system of the LRMP Scenario in an estimate undertaken in January 2004[76]; approximately 7% more coverage than in the Baseline Scenario.

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74 The area becomes internationally known for a negative as opposed to positive attributes. The Great Bear Rainforest "brand", used as the basis for market action campaigns, has potential for becoming a positive name brand to distinguish the region (and possibly BC) in a very competitive international nature-based tourism marketplace, where branding is difficult yet very important.

75 Amount of additional tourism revenues and employment will depend on willingness of current tourism operators and new entrepreneurs to capture the share of this increasing demand that is consistent with the plan area's capacity.

76 Visual management has only a very small impact on timber supply, approximately 0.6% in the case of the LRMP scenarios. More restrictive designations do, however, often increase harvesting costs and harvesting time periods, thereby lowering economic returns to forestry and making some visually classified areas economically inoperable.

The LTMP Scenario suggests that approximately 25% of the GLB offering high hut-to-hut and kayaking values would be protected and the high scenario (LRMP3) suggests protection of 30%.

4.4.1.4 Security of Access

➢ The question of access security will be dependent on the management of new protection areas, which is yet to be defined.

Some backcountry tourism activities are accessible by road, but for the most part operators on the North Coast travel with their clients by air or water to engage in fishing, wildlife viewing, hiking, kayaking and other wilderness activities. Depending on the restrictions pertaining to protection land, it could become more difficult to access some areas. *For example, only paddlers and two operators who hold Commercial Recreation Tenures may presently go ashore in the Khutzeymateen grizzly reserve. All other operators are required to view grizzlies from the water outside of the sanctuary*[77].

Land use plans should take into account whether the policies/LRMP recommendations for protecting one area will make it more expensive or difficult for backcountry visitors to reach an adjacent area.

In some circumstances, particularly where visual sensitivity is high or very high, land use protection could lead to possible decommissioning of infrastructure such as piers, boat landings, back country roads, or air land strips; or else prevent future construction of these kinds of facilities. *This may be determined by governing agency policy concerning viewscapes and resources if the protection area is designated as a provincial park. This, in turn, could restrict or – in extreme cases – eliminate tourism operator access to a protection area or a portion thereof.*

The quality of a tourism operation (either the home base or the jumping off point for the activity) is determined not only by visual quality, but also its proximity to the resource (such as saltwater fishing). For example, there are several fishing camps and lodges on the North Coast that could be affected if they are in a newly protected area. If required to move their bases outside the area, it may mean a move to a sub optimal location, and at considerable cost for those who have a fixed or land based operation. Floating lodges would have more flexibility to move if required to do so, but not necessarily to as good a location.

Restrictive land use policies in protection areas could limit the revenue potential and economic growth that arises from linking tourism products if it hinders access or imposes additional costs. Examples of linkages include (but are not limited to):[78]

- Cruise ships and air, road or water tours to unique backcountry sites;
- destination lodge resorts and and saltwater fishing;
- ocean kayaking and portaging as a secondary activity;
- air tours and freshwater fishing; and,
- hut to hut access by hiking, cycling, ski touring.

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[77] Land access in the park is strongly discouraged.

[78] A very thorough discussion of North Coast tourism product linkages is available in *North Coast Forest District Tourism Opportunity Strategy.*

- Again, land use plans should take into account whether the policies in place will preclude certain activities that can be linked, or blocks them by virtue of physical inaccessibility.

4.4.1.5 Impact Ratings

The following are the conclusions about the overall impact of the LRMP scenarios on tourism and recreation resources and economic development.

- Baseline Scenario – Negative
- LRMP Scenario – Very Positive

5. MINERALS AND MINING ECONOMIC DEVELOPMENT

5.1 BACKGROUND

The plan area has high mineral potential in the Kitsault and Ecstall areas but currently hosts only one small industrial mineral operation, which seasonally removes silica from the slag pile at Anyox. The North Coast has been home to past producing metal mines at Anyox, Alice Arm, Kitsault, Porcher Island, and Smith Island, and, as well, a smelter at Alice Arm.

The area has a long history of small-scale exploration and mining. In 1900, the BC Minister of Mines established a Recording Office at the Hudson Bay Company post at (what is now the community of) Port Simpson (Lax Kw'alaams) [Pinsent and Pardoe September 2003].

The past producing mines are typical of many similar operations throughout the province, that is remote locations reliant on locally produced hydroelectricity or imported diesel fueled electricity generation. The area's geography acts as both a hindrance and incentive for mineral exploration and development; rough topography makes some mineral deposits uneconomic but deposits found near the area's extensive coastline may have good access to low cost ocean transport.

Most of the MINFILE locations of showings and prospects are located in seven clusters in the plan area and descriptions of each follow [Pinsent and Pardoe September 2003; Malott April 2002].

- **Ecstall** – Sixty kilometres in length and 15-20 km wide, stretching from the Skeena River to Hawksbury Island, the Ecstall Belt is viewed as highly prospective for bedded sulphide deposits. Boliden's Myrah Falls underground copper-gold-zinc mine, near Campbell River, is an example of the type of mine that could possibly be developed in the Ecstall area if an economic deposit is discovered and defined. Three deposits with mineral reserves have been identified in this belt, the Ecstall deposit near Red Gulch Creek, the Packsack deposit approximately 10 km southeast of the Ecstall deposit and the Scotia deposit 25 km northwest of the Ecstall deposit.

- **Kitsault** - The Kitsault area is within the same group of rocks that run northward through Stewart, and which host Barrick Resources' Eskay Creek underground gold mine. The North Coast's most recent mineral mine, the Kitsault, on Lime Creek, was located in this area and is described in the adjoining text box. The Kitsault mine's history is an example of the often long gestation period between discovery and mine development; the showing was originally found in 1916, but mining did not start until 1968. A wide range of deposits have been found in this geological setting, including the world's largest molybdenum deposit, Quartz Hill, westward on the Alaska Panhandle. Northgate Exploration's Kemess Mine, an open pit copper-gold mine at the north end of Williston Lake, is an example of the type of current operation that would likely be developed from a porphyry deposit in the Kitsault area.

- **Upper Kitsault** - BC Energy and Mines has ranked the Upper Kitsault as the ninth largest silver producing area in the province [Pinsent and Pardoe September 2003]. Earlier in the century, the Dolly Varden silver mine operated intermittently and the Torbrit silver mine operated between 1949 and 1959 in the Upper Kitsault area. The Wolf and Northstar deposits are located near the old Torbiit mine. Upper Kitsault

geological formations are viewed as being similar to those of Eskay Creek, which has stimulated interest in finding bedded sulphide deposits in the area.

- **Anyox** - In the first third of the century, the Anyox area had two copper mines, Hidden Creek and Bonanza. Granby Consolidated, Mining and Smelting and Power Co. built a smelter and town at Anyox, which custom processed ore from mines along the BC and Alaska coasts. When the mines and smelter closed in 1935, there were approximately 1,000 employees and 3,000 residents in the Anyox community.

- **South Stewart** – A few kilometres north of the plan area is Stewart, well known for its mineral exploration and development. Near Stewart, there are the closed Silbak Premier and Granduc Mines, both prominent producers, as well as an extensively explored deposit, Red Mountain. In the plan area, just a few kilometers south of Stewart, the Prosperity-Porter Idaho Mine produced silver, gold and lead intermittently, between 1922 and 1981. The Georgie River gold deposit was the target of extensive diamond drilling in the 1980s.

- **Porcher Island** – The Surf Point and Edye Pass Mines on Porcher Island produced gold and silver from a quartz vein system between 1919 and 1937. The area has since been explored intermittently, for example in 1996/97, when Cathedral Gold Corporation undertook a drilling program that delineated approximately 1.4 million tonnes of ore grading 6.86 ga/t of gold and 5.49 g/t of silver.

Kitsault Mine is a plan area example of a large mine and its economic impact

The town of Kitsault, on the south side of Alice Arm, was built on the abandoned site of Silver City, which existed in the early years of the community of Alice Arm. British Columbia Molybdenum Limited built the Kitsault townsite in 1968 to service its molybdenum mine. The town was connected to the highway system and electricity grid in 1979, by an all-weather road to Terrace built by the second mine operator, Amax of Canada Limited. The community had over 100 houses, apartment buildings and a wide range of facilities, including a health clinic, swimming pool/recreation center and primary school. The mine employed a staff of 450 and its height, the town serviced approximately 1,200 people. With the closure of the mine in 1981, the town was placed on "care and maintenance" status and a caretaker stays on site year round.

Excerpt from Pinsent, R. and Pardoe, J. (September 2003) Mineral Resources of the North Coast Region. BC Ministry of Energy and Mines.

- **Banks Island** – On the west side of Banks Island, there is a cluster of gold showings that are collectively referred to as the "Yellow Giant" property. Over the 1977-87 period, Trader Resources undertook an extensive exploration program that included a road from tidewater, tunneling, drilling, and a feasibility study for a barge-based ore processing mill.

Portland Canal Aggregates, in partnership with Highbank Resources[79], is examining the viability of a gravel quarry at Swamp Point along the Portland Canal[80]. The gravel would likely be shipped to the large California market. As an example, the largest gravel pit operation in Canada

[79] Which acquired the Anyox area gold and moly mineralized claims from Granby Mining Corporation in mid 2003.

[80] The Anyox smelter, which operated from 1914 through 1935, sourced limestone from a Swamp Point quarry to help process its copper ore.

is operated by Construction Aggregates Ltd. at Sechelt, which ships into the western US seaboard states[81].

A California manufacturer of abrasive products, such as polishing belts and grinders, seasonally removes silica from the slag pile of the old Anyox smelter. In the same vicinity as Anyox, there are other silica deposits found in quartz veins. Further down the coast there is a 270,000 tonne deposit on the west side of Campania Island [Pinsent and Pardoe September 2003].

The Laredo limestone deposit on Aritazabel Island has been intermittently investigated since 1952. In the early 90s, it was looked at as a source for architectural and decorative stone for export to California and in 1999, North Pacific Stone Limited explored the property with the intent to mine bright, white limestone for use in the manufacture of plastics, paint and paper [Pinsent and Pardoe September 2003].

The BC Government has undertaken a few measures in the past two years to improve the business climate for exploring and developing minerals in the province. An important piece of this strategy is the "Two Zone" legislated policy, where zone one areas prohibit mineral exploration or mining. The second zone is open for mineral exploration and development[82], subject to compliance with local, BC and federal government regulations.

Although exploration and mining have not fared well in the province throughout the past decade, BC has abundant mineral values and one of the best infrastructures, including a highly skilled workforce, in the world for finding, developing and operating mineral mines. The following table presents some basic features of a small, precious metal BC mine example, illustrating potential economic impacts, which includes an estimated 160 PYs of employment for a 300 tonne per day operation.

Table: 5-1 Small BC Precious Metal Mine Example

Parameter	Units	Low	High
Mining Method		Underground	Underground
Scale of Operations	Tonnes per day	300	500
Mine Life	years	5	7
Grade	Grams per tonne	30	100
Gross value per tonne	US$300	$459	$1,531
Metal recovery	90%	$413	$1,378
Net Ore Value	NSR $ per tonne	$400	$1,300
Capital Investment	$millions	$50 M.	$100 M.
Annual Net Revenue	$ millions	$44 M.	$237 M.
Annual Operating Costs	$millions	$21.9 M.	$142.9 M.
Annual Operating Costs	$ per tonne	$200	$780
Annual Profit	$ per tonne	$22	$95
Employment -	PYs	50	100

81 As further examples, in 2003, a crushed granite quarry operated by Eagle Rock Materials Limited, a joint venture between local First Nations and Polaris Minerals Corporation, commenced operations near Port Alberni and started shipping to California. Polaris, in another joint venture with local First Nations, has entered into the BC Environmental Assessment Office's review a sand and gravel project near Port McNeil. Upon approval and construction it would offer employment for an estimated 40-50 persons and also be directed at the California market.

82 Legislation for the two-zone system was enacted in 2002 under the Mineral Tenure Act.

Construction			
Employment - operating	Employees	160	360

Source: BriMar Consultants Ltd. and Finisterre Holdings Ltd. March 2003

Vancouver remains a center for raising venture capital for mineral exploration and there is a large and experienced cadre of geologists, engineers, drillers and miners who often work outside of the country. The North Coast area is readily serviced from Vancouver and has important mill and tidewater loading facilities at Stewart and a deep sea terminal at Prince Rupert. Boliden Westmin (Canada) Limited maintains a mill at Stewart, which ceased production in 1996. A loading facility at Stewart has serviced the Granduc, Cassiar Abestos, Eskay Creek and Huckleberry mines since the 1970s. Four hours distant by road from Prince Rupert, although not connected by air, Smithers was a regional mining center in the 1970s and 1980s and has retained some of its infrastructure and skilled mineral industry workers. Between 1981 and 1994, Equity Silver Mines near Houston, shipped concentrate from a load-out facility on Prince Rupert's Ridley Island. In 1984, a federal Crown Corporation, built a deep sea load out facility on Ridley Island to ship coal from the Tumbler Ridge mines.

Three BC metal mines

The BC Ministry of Energy and mines calculated the average results for several economic parameters of three BC major metal mines: Homestake Canada's Eskay Creek (gold and silver); Boliden Westmin Canada's Myra Falls (copper, zinc, lead, gold and silver); and Northgate Exploration's Kemess (copper and gold). The average results for the three mines are shown in the following table [Koncohrada January 2001].

Table: 5-2: *Average economic results for three BC metal mines*

Indicator	Average Results
Employment (PYs)	335 PYs
Average mine life	16 years
Capital cost	$392 million
Annual Revenues	$172 million

A characteristic of mineral exploration and development requires that many hundreds of showings are investigated and evaluated before a deposit is delineated and then transformed into a financially feasible mine. Areas can be described as having high or extreme mineral potential based on a sophisticated understanding of its geology but on the ground investigation by prospectors and exploration crews digging and trenching a large number of showings is needed to further the process of identifying a deposit. A prospect worthy of additional investment is diamond drilled in an attempt to define the extent and quality of the deposit. The probability of a mineral occurrence eventually being developed into a mine is estimated as 1 in a 1,000 [BriMar Consultants Ltd. and Finisterre Holdings Ltd. March 2003]. Mineral development is often a long process and is highly dependent on access to vast tracts of land to assess geological potential. For example, showings at the well known Eskay Creek were originally found in the 1930s.

5.2 INDICATORS

The following table presents the indicators that were used in this project to assess impacts to mineral resources and gauge economic development impacts on the minerals exploration and mining industries under the Baseline and LRMP Scenarios.

Table: 5-3 Minerals and Mining Economic Development Indicators

Indicator	Metric	Rationale
Metallic Mineral and Industrial Mineral Potential, ranked as extreme, high, moderate, fair and low	Hectares (ha)	Ministry of Energy and Mines experts used maps and data to classify areas on a probabilistic basis of discovering future mineral deposits. On a provincial basis, the relative ranking identifies areas of higher potential.
Metallic and industrial mineral sites (past producer, producer, developed prospect, prospect and showing)	Number	Concentrations of occurrences or sites provide an indication of potential and the amount of industry interest in an area's mineralization.
Metallic mineral and placer claims	Number	Presence of claims in proposed protection area highlights potential compensation situation for BC Government; Congregations of claims provide an indication of potential and the amount of industry interest in an area's mineralization.
Sites of exploration activity for the 1992-2002 decade	Number	Concentrations of exploration sites provide an indication of potential and the amount of recent industry interest in an area's mineralization.
Exploration expenditures for the 1993-2002 decade	Dollars	The dollar expenditure on mineral exploration provides an indication of potential and the amount of recent industry interest in an area's mineralization[83].

5.3 IMPACTS

5.3.1 Mineral Potential

5.3.1.1 Indicator Results

The following table presents area analysis results for the following key minerals and mining indicators by scenario.

- Area of "extreme" or "high" metallic mineral potential and percentage of the plan area's "extreme" or "high" metallic mineral potential area in current or proposed protection areas
- Number of developed prospects, prospects, and past producers in the plan area and in current or proposed protection areas[84]
- Number of mineral claims in the plan area and in proposed protection areas
- Area under mineral tenure and percentage of area under mineral tenure in current or proposed protection areas
- Number of exploration reports for the 1993-2002 decade for sites in the plan area and for sites in proposed protection areas
- Exploration expenditures total for the 1993-2002 decade for sites in the plan area and percentage of the plan area's exploration expenditures that occurred in proposed protection areas

[83] Data for number of exploration sites and exploration expenditures is drawn from the ARIS database of BC Ministry of Energy and Mines. It is estimated that this database only captures a minority, up to an estimated 40% province-wide, of all exploration work [Malott April 2002].

[84] As stated in the Background Section, there is only one current producer, a small industrial minerals operation at Anyox, and it is located in the plan's general management zone.

Table 5-1: Minerals and Mining Indicator Results by Scenario

Mineral Interest Indicator	Total amount in plan area	Scenarios		
		Baseline	LRMP (April)	LRMP (March)
		% Share or Amount in Current and/or Proposed Protection Areas		
Extreme or High metallic mineral potential area	742,839 ha	1%	5%	31%
Past producers (#)	28	0	0	3
Developed prospects (#)	23	0	0	8
Prospects (#)	19	0	5	5
Mineral claims and claim groups (#)	918	0	1*	184
Gross Land Base area under mineral tenure	50,437 ha	0%	1.4%*	2%
Exploration reports for past decade (#)	52	0	11 (with the latest in 1992)	31
Total exploration expenditures for past decade	$6,529,347	0%	2.5%	76%

* linework is not complete on the current map and may exclude 3% of the Crown grant mineral claim and 96% of current tenure, bringing the potential overlap down to linework to mitigate less than 0.05% of tenured area in the North Coast LRMP area

Source: MSRM

5.3.1.2 Results Discussion

➢ The impact of the (April) LRMP Scenario on mineral exploration and development relative to the Baseline Scenario is nominal as a result of the decision to allow mineral exploration and development in approximately 35% of the gross land area of the proposed protection areas.

- The (April) LRMP Scenario has a similar share of extreme and high mineral potential area available to mineral exploration and development (95%) compared to the Baseline Scenario (99%). The intermediate scenario that was before the Table in mid March had only 69% of extreme and high metallic mineral potential area available for mineral exploration and development. As a result there is a marked reduction in negative impact on the mining sector with the (April) LRMP Scenario compared to the mid March intermediate scenario. Negotiations between sectors at the North Coast Table in March and April has resulted in several proposed protection areas with high mineral values being made available for exploration and development.

- The proposed protection areas where mineral exploration and development will be allowed include the following: Kshwan, Kitsault, and Stagoo areas in the north of the Nass River reaches of the plan area, Kingkown Inlet on Banks Island, Pa_aat West on Pitt Island, parts of Porcher Island and Johnston North and Quaal River in the Ecstall area.

- Another example, of the alteration of impacts on the mineral sector arising from the decision to allow mineral exploration and development in some proposed protection areas, is with the exploration expenditures indicator. The mid March intermediate risk scenario showed 76% of exploration expenditures of the past decade occurring in current or proposed protection areas whereas only 2.5% of these exploration expenditures

occurred in protection areas, which are off-limits to mining, of the (April) LRMP scenario.

- The North Coast LRMP is focused on land-based resources so there are only minor or negligible implications for traditional energy source potential. Some interested parties, including the Gitxaala First Nation, have identified locations for generating wind energy in the plan area[85]. It is not clear at this juncture if LRMP visual management designations or candidate protection areas will compromise future development of the wind resource in the plan area.

- There has been no exploration of the oil and gas resource, on the east, in the Bowser Basin (North Kalum and Kispiox TSA's). Evaluation is very preliminary and estimates of oil or natural gas potential are subject to a high level of uncertainty.

- The competitiveness of the plan area as a locale for mineral exploration and development is tied to several factors, but access is the only factor that is directly influenced by LRMP decisions. The competitiveness factors include the following.

    - Access. On the matters of amount of access and security of access, the LRMP has the most influence on the area's competitiveness from a minerals exploration and development perspective. The decisions to open up some proposed protection areas to mineral exploration and development minimizes competitiveness concerns around the access issue in the plan area.

    - Financial and regulatory climate for minerals development. Despite some measures to attract exploration and investment interest, the climate for minerals development in BC remains less attractive than top-ranked areas in other parts of the world[86].

    - Amount and quality of attractive geological features. It has previously been mentioned that there are a few interesting minerals exploration areas on the North Coast. Further geological research by federal and provincial governments and the private sector would increase understanding about the area's mineral characteristics and potential.

    - Mine characteristics and local mining infrastructure. From a plan area development perspective, an important factor will be the interest and ability of local entities to capture a large share of mineral exploration and development activity in the North Coast.

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85 Uniterre Resources has proposed a 750 MW wind energy farm offshore of QCI's Naikun Park. It plans for an underwater cable to Porcher Island and a new overhead right-of-way on Porcher Island connecting to the existing distribution ROW that links Kitkatla to the BC Hydro grid.

86 Liv Fredriksen. (January 2004) *Annual Survey of Mining Companies 2003/04*. Fraser Institute.

5.4 CONCLUSIONS

The following are the conclusions about the overall impact of the LRMP scenarios on minerals and mining economic development.

- Baseline Scenario – Very Positive
- LRMP Scenario – Very Positive

6. NET ECONOMIC VALUE[87]

6.1 BACKGROUND

The net economic value frame of a SEEA provides a reading of economic efficiency, i.e. helping to identify economic value of the use of resources under study. It highlights impact from an economic accounting perspective and measures economic rent.

It is an inclusive measure that considers economic value arising from all uses of all resources under study. In the North Coast LRMP case, there are several resources over a large area under consideration. In other analytical exercises, the focus is often much more narrow, for example the multiple economic uses of a particular river (for hydroelectricity generation, angling, recreational swimming, etc.). Attempting an "economic accounting" exercise for all resources and their uses over the North Coast plan area is a prohibitive task but qualitatively understanding these values would benefit LRMP decision-making.

Resource use in the plan area is not a mutually exclusive choice between either the forest industry or tourism. Every plan scenario can accommodate multiple activities. From an economic efficiency perspective[88], the most desirable path is to select the combination of management directions and rules (i.e., scenario) that produces the largest amount of net economic value. In the North Coast LRM plan, forest industry and tourism activity are intended to co-exist and thrive, both contributing to the province's economic wellbeing.

In this chapter, a high level estimate of net economic value arising from harvesting of North Coast TSA is presented. Other sections of the chapter, discuss in qualitative terms, net economic values associated with other resources.

6.2 FOREST INDUSTRY

➢ Based on the timber harvest and supply projections, there is no net economic value at risk in the initial 30 years of a LRMP Scenario implementation. Net economic value is not at risk from LRMP Scenario timber supply changes until the 4th decade; approximately $130,000 per year, a 5.8% decrease from the net economic value projection for the 4th decade of the Baseline Scenario.

- The estimated annual net economic value arising from harvesting and processing North Coast timber is broadly estimated as approximately $2.3 million for the Baseline and LRMP Scenarios through their initial three decades.

- As in the forest industry employment estimation case (Section 3.3.4), an under supply of timber below the recent historical harvest is the trigger for placing positive net economic

[87] Net economic value is often referred to as "economic rent".

[88] A stakeholder looking at the plan area from another perspective, such as First Nations culture or environmental preservation, may not choose to adopt Net Resource Value as a decisionmaking aid.

value at risk. Net economic value at risk is defined as the net economic value that would be supported by the recent annual historical harvest less the amount supported by the LRMP Scenario's potential annual t mber supply. The following table presents net economic value estimates for each scenario.

Table: 6-1: Estimate of annual net resource value derived from harvesting timber in the North Coast plan area[89]

Economic rent category	Decades 1, 2 & 3 (0 – 30 yrs)		Decade 4 (31 – 40 yrs)	
	Baseline Scenario	LRMP Scenario	Baseline Scenario	LRMP Scenario
Public sector rent[90]	$943,940	Same	$943,940	$892,612
Labour sector rent	$1,331,376	Same	$1,331,376	$1,251,564
Corporate sector rent[91]	negligible	Same	negligible	negligible
Net economic value	$2,275,316	Same	$2,275,316	$2,144,176
Net economic value at risk	$0		$131,140	

- Net economic value for the forest industry includes stumpage plus extra ordinary returns to labour and owners of capital. Net economic value (or economic rent) and stumpage are not equivalent. Stumpage is the return to the Crown as the steward and legal owner of the resource. It fluctuates based on a complex formula that tries to reflect a sharing of the residual economic return. Economic rent *includes* stumpage because economic rent is the net value of the resource to BC "society" (that is to all residents of the province, and not simply to holders of timber harvesting rights and not to the BC Government). A portion of the economic rent goes towards stumpage and the remainder is retained by employers and employees.

  Economic rent includes gross revenues to owners of capital less costs less a reasonable profit[92]. In the forestry case, economic rent is the difference between timber selling price and harvesting and transportation costs, before taxes and BC Government assessed royalties (i.e. stumpage), and after a reasonable profit. It is referred to as "rent" because it accrues over time.

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89 Estimates of net economic value for the forest industry are highly sensitive to estimation methodologies. These estimates should be interpreted as broad ones but satisfactory for comparing relative differences in net economic value between scenarios.

90 Government resource rent revenues are used as a proxy for a portion of the economic rents from forestry. The stumpage returns are assumed to reflect product market prices less production costs less a reasonable return on capital.

91 Corporate rents in the BC forest sector are seen as being competed away. Recent evidence shows very poor returns to owners of forest industry assets in BC. For example, in publication entitled *The Forest Industry in British Columbia*, PriceWaterouseCoopers reported that between 1995 and 1999, the BC forest industry recorded a five-year return on capital of 2.9% and total earnings before taxes of an average of 0.8% of total sales revenues.

92 Although not presented in this report, similar observations can be made about mining and oil and gas production where mine, and oil and gas well owners pay royalties to the BC Government. They are derived from economic rent or net economic value but labour and corporate owners also share in the above normal profits derived from extracting a resource in limited supply and high demand.

6.3 TOURISM INDUSTRY

➢ A Baseline Scenario implementation would likely erode some of the net economic value generated by the plan area's tourism sector. A LRMP Scenario is likely to help sustain the net economic value generated by the plan area's tourism sector[93].

- Tourism operations that package unique or special resources within an international context have a good likelihood of realizing economic rents. An example is King Pacific Lodge on Princess Royal Island. Other examples are the two grizzly bear viewing operations that have BC Government issued Commercial Recreation Tenures for the Khutzeymateen.

- North Coast tourism operations, such as the many saltwater fishing charter operations based in Prince Rupert, that compete with tourism operations in other parts of the province or with each other, are unlikely to earn net economic value because of stiff competition that drives down their revenues. Although using or depending on the area's natural resources, most North Coast tourism operations don't earn above normal profits[94], which is the trigger for indicating a tourism operation is capturing economic rents.

- In a study for the conservation sector, Redstone Strategy Group [October 2003] projected that the North and Central Coasts could support up to two more high-end tourism lodges[95]. The implementation of the LRMP Scenario would help to sustain the economic rents that are likely currently accruing from the King Pacific lodge operation and the other few plan area tourism operations that generate net economic value or economic rents. Its implementation would maintain the potential for additional economic rents through the opening of an additional high end nature-based tourism lodge in the North Coast.

6.4 RECREATIONAL ANGLING, HUNTING, HIKING, CAMPING, BOATING AND KAYAKING

➢ From a net economic value standpoint, implementation of the LRMP Scenario would help to sustain the resources that are the basis for recreational experiences. With the Baseline Scenario there would be some gradual degradation of these resources, leading to less recreational activity in the plan area, and likely less net economic value (or economic rents). Local recreationists who do less back and mid-country activities may not be in a position to

93 These conclusions are based on conjecture as estimations of tourism sector net economic value were not undertaken for this project because of a lack of underlying data. Economic rents associated with tourism operations are calculated by subtracting from total revenue all costs associated with producing the tourism experiences, including an allowance for profit and risk. A standard 10% of revenue is often used to account for profit and risk in this type of analysis.

94 The technical economic term is producer surplus.

95 Each supporting approximately 30 jobs. The existing high end lodges are King Pacific, which is based on Princess Royal Island and Nimmo Bay Resort.

go elsewhere so there is the potential for loss of some economic value if there are fewer recreation days registered by them.

- An important objective of this SEEA is to assess all net economic values in the plan area. Many goods and services, including the recreational services of natural resources, do not get traded under normal market conditions. Even where there is no price[96], BC anglers, hunters, hikers, campers, boaters and kayakers enjoy a surplus of benefits because they would be willing to pay a certain amount to consume or enjoy the services of the resources that go into making up their recreational experiences[97].

  The absence of prices is the norm in the case of recreational use or non-use of natural resources. Sometimes entrance or permit fees (for resident hunting and angling) are seen as market prices but they are rarely accurate representations of economic value. Their prices are almost never set within a competitive market framework[98]. License and permit fees increase government financial receipts and decrease individual financial resources, that is money moves from "one pocket to another", but they do not indicate net economic values that individuals or BC society attach to the resource(s).

- There are no comprehensive estimates for the total numbers of BC hunters, anglers, kayakers, campers and boaters who venture into the back and mid-country and waters of the North Coast[99]. Having an estimate would be a step towards creating a baseline estimate of the net economic value attached to recreational activity in the back and mid-country and waters of the plan area.

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96 Where there are no marketplaces for products or services, there are no official prices. There is a large academic literature on why environmental amenities lack prices and the implication of this factor [Freeman 1993]. There is no marketplace for the several environmental amenities, including water, which are essential to providing a sport fishing experience. The government license fee is not a price because it is not set within a competitive marketplace; it is intended to help off-set regulatory and stocking costs. If you ask anglers for the amount of money they would be willing to pay but do not, above and beyond their trip costs, gas, food, etc., to enjoy sport fishing, they will quote a dollar figure. This is equivalent to the net economic value or consumers surplus they place on the services of the environmental amenities that go to make up their sport fishing experience.

Aggregating the per day net economic values for a recreation experience in a region or at a site over the annual number of recreationists yields an estimate of net economic value for the recreation experiences in the region. The lack of observed market prices for outdoor recreation experiences means that their net economic value must be estimated. A few methodologies have been developed and gained wide acceptance, the Contingent Valuation Method (CVM) and Travel Cost Method (TCM).

97 The differentiation is made between BC and non-BC hunters, etc. because the net economic value of the non-BC group is captured in the net economic value of the tourism industry. Recreational hunters, anglers, campers, boaters, kayakers and hikers are interested in an overall recreational experience that is tied into accessing an overall wilderness ambience as well as the opportunity to see (and in the case of hunters and anglers, capture) some fish and wildlife species.

98 For example, permit and license fee prices are not set based upon surveys of what resident hunters and anglers say they are willing to pay for them, and competitive bids are rarely used to ration access as is done with BCTS/SBFEP timber.

99 There are estimates of hunters for management units (administered by BC Ministry of Land, Water and Air Protection) that overlap with the plan area [Tamblyn and Horn March 2001].

Direct estimates of per day net economic values for various forms of recreation[100] in the North Coast would also be helpful but estimates are available from elsewhere in BC that can help to inform about the value of recreational experiences. In the mid 90s, a typical per day economic rent value in BC was $25 [Crane Management Consultants 1994][101].

6.5 WILDERNESS AND WILDLIFE CONSERVATION

➢ There is a trade-off between resource extraction development and conservation in the scenarios. The task is to select the "right" mix of development and conservation that achieves the most economic value for British Columbians. Each individual will make different selections about the "right mix" and different groups (First Nations, Labour, local government, etc.) will make different selections; ultimately the LRMP Table makes a choice as a group about the trade-off, and it will likely be a reasonably representative choice for all adult British Columbians. British Columbians were not surveyed for this SEEA to assess the economic values that they might attach to the conservation attributes of the Baseline and LRMP Scenarios. We surmise, given the interest in the "Great Bear Rainforest" issue and the success of market action campaigns, that there is a willingness on the part of many British Columbians to at least consider forgoing the incremental value of resource extraction development associated with the Baseline Scenario to gain the incremental net economic value from conservation associated with the LRMP Scenario[102].

- For many BC residents, an important quality of life issue is conservation of the province's natural resources. Planning for management of the "Great Bear Rainforest" is the original impetus for developing the North Coast LRM Plan. It is an impetus that was driven by many persons inside and outside of BC seeing value in conserving the natural resources and environment of the Central and North Coasts.

  The concept of wilderness is open to different interpretations. For this discussion, wilderness is meant to mean "a wild, uncultivated, uninhabited region". Developing an

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100 The technical economic term is consumer surplus, and is the amount that a recreationist would pay above his or her travel and equipment outlays. In some instances, recreation resources are owned privately, a private fishing lake is an example. The incremental cost that an angler pays for the right to fish the lake above the owner's maintenance cost is equivalent to consumer surplus. This type of market-based fee is rarely seen with public ownership and management of recreation resources.

101 Other attempts have been made at valuing use of nature from this perspective. A federal-provincial task force undertook a large-scale survey in the mid 90s that addressed this topic. Its report is entitled *The importance of nature to Canadians: the economic significance of nature-related activities*. BC Parks commissioned Coopers and Lybrand to complete an economic impact study of parks in 1995/1996, which provides estimates of consumer surplus associated with BC Parks. In that study, the consumer surplus per user day is estimated at $31 per user day for day use and at $33 per user day for camping visits.

102 A way to view the matter is to consider a situation whereby a random sample of British Columbians is asked if they would be willing to forgo the incremental economic value attached to resource extraction development under a scenario to gain its conservation benefits (i.e. avoid certain conservation losses). Each respondent would be asked to provide a simple yes or no answer for only one scenario. Effectively, they would be asked to weigh the benefits of additional conservation (from their personal perspective) with the foregone economic value of additional resource extraction development. Because of the complexity of costs and benefits associated with each scenario, a survey approach is not practical. The table of stakeholders approach used in the North Coast LRMP implements a similar concept, i.e asking a group of British Columbians to understand the trade-off.

area for forest harvesting appears contrary to the notion of wilderness. Initially accessing an area for timber harvesting will undoubtedly change it. Regulatory authorities attempt to mitigate the impacts of access on wilderness values by imposing access and regulatory restrictions such as vehicle closures, deactivation measures or hunting and fishing regulation restrictions. However, these efforts are more directed at mitigating the impact of access than at preserving wilderness values.

Aside from the ecological impacts of timber harvesting, there is the matter of increased tourist and recreationist visitation to the plan area. This may lead to more conflicts between humans and wildlife, especially bears, and a feeling among some BC residents that the area's wilderness qualities are being eroded. To many British Columbians these are moral and ethical values that extend beyond economics. However, conserved natural resources are viewed by many as having economic value, albeit often not recognized in the marketplace[103].

From an economic perspective, consumption and enjoyment of wilderness resources occurs in two basic ways, use and non-use. Use is a familiar term that refers to on-site activities. They may involve consumption of the services of a resource for leisure, such as hunting and fishing, or non-consumptive uses, such as wildlife viewing.

Non-use value[104] is usually referred to as preservation or intrinsic value because it revolves around keeping a resource in a relatively undisturbed state. Non-use is distinguished from use in that, with non-use, only the resource helps produce an activity, i.e. no other resources are consumed such as gas and time to visit a recreation site.

The type, amount and distribution of facilities and access in plan area will have a fundamental influence on the incremental visitation to the area and therefore the quality of wilderness experiences.

- There is no question that timber harvesting will modify the wilderness and rainforest atmosphere in some parts of the plan area. The modification will be incremental[105], however, and there are specific targets for range of natural variability (RONV) under discussion at the North Coast Table and incorporated into the Central Coast Table' agreement-in-principle.

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103 Since there are no competitive marketplaces for recreational or intrinsic services of environmental amenities, their net economic values must be estimated through indirect methods.

104 Non-use or preservation value is said to have four components: **existence value** - a person may simply enjoy knowing a resource is left in a certain state; **option value** - a person may hold some expectation, however slim, of consuming or enjoying a resource in the future; **quasi-option value** - a person may hold some expectation that new information may come forward at a later date, which would influence a decision about use of a resource today; and **bequest value** - a person might want to see a resource made available to others today or in the future.

A BC Government attempt to value wilderness preservation was undertaken in the mid 90s by the BC Ministry of Environment; its' report is entitled *Economic Value of Wilderness Protection and Recreation in British Columbia.*

105 For example, roads would be constructed a few kilometres per year as blocks are harvested.

6.6 NATURAL CAPITAL

➢ The North Coast LRMP process does fulfill the prescriptive intents of a "natural capital" approach for forest ecosystem management.

- In recent years, some economists have coined the term "natural capital", and mainly applied its' concepts to analyze management of old growth forest[106]. Natural capital uses the concept of interest and capital to examine how timber extraction can sustain ecosystem functioning and the services and products of the forest ecosystem.

  In the case of old growth forest management, an interest/depletion approach to management is advocated. The proposed management strategy is to live off the interest, harvested timber, and maintain the natural capital intact, thereby avoid depleting the natural capital and running the risk of eliminating the non-forestry services that the standing forest capital provides. The suggested minimum "interest" or harvest is the Long Term Harvest Level (LTHL) but natural capital advocates state a preference for an ecosystem-based management approach to setting harvest levels, which incorporates the precautionary principle.

  The natural capital concept has been used to critique the narrowness of certain decision-making tools for setting AACs. The main critique is that current forest management, as reflected, for example, in the BC Government's Timber Supply Review process, often does not substantively consider the wide range of products and services (in addition to timber products) that forests provide (or can provide) and does not incorporate the precautionary principle.

- An EBM oriented LRMP process takes into account the wide range of services and products that a forest provides and can be informed by the precautionary principle. From this perspective, important concerns of natural capital advocates are fulfilled.

  The process oriented approach, which involves a representative group of knowledgeable and engaged stakeholders, of examining natural capital through Strategic Land Use Planning (SLUPs), which explicitly incorporates an ecosystem based approach, likely approaches the point of reaching the "best" decision, from a broad, societal viewpoint. The primary qualification to the preceding statement relates to the scope and depth of the SLUP process, i.e. important uses and values need to be given appropriate consideration so that decisionmaking is reasonably informed about trade-offs.

- Although not specifically using a natural capital analytical approach (of harvesting the interest and maintaining intactness of the North Coast forest ecosystem), the NC LRMP process has ranged wide in its investigation of the products and services of the North Coast ecosystem and uses an ecosystem based management approach. Therefore, it has taken into account the underlying issues that a rigorous natural capital analysis would likely delve into.

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106 These include the following: El Searfy, S. (1989) *The Proper Calculation of Income from Depletable NaturalRresources in Environmental Accounting for Sustainable Development*. World Bank; Daly, H.E. (1996) *Beyond Growth: The Economics of Sustainable Development*. Beacon Press; Green, T. (April 2000) *Cutting for the Economy's Sake: Setting Timber Harvest Levels That are Good for BC's Economy*. Prepared for Sierra Club British Columbia.

6.7 CONCLUSIONS

The following are the conclusions about the overall impact of the LRMP scenarios on net economic value.

- Baseline Scenario – negative
- LRMP Scenario – positive

7. GOVERNMENT REVENUES

7.1 INDICATORS

This chapter presents estimates of BC Government revenues from the forest industry based on the projected timber harvest for each scenario. The sources of revenues are the following.

- MPS stumpage – The MOF per m^3 estimate for MPS stumpage for the North Coast TSA is $2.18/m^3$ and was used to estimate total stumpage. The average 2001-2003 North Coast stumpage was $4.31/m^3$ and the average 2003 stumpage was $3.72/m^3$.
- Export fee – The BC Government assesses an export fee of $1 per m^3 in lieu of manufacture against exported logs.
- Other forest industry taxes – The total estimate of other corporate related taxes from the forest industry uses a unit estimate of $6.95 per harvested m^3 that was calculated by PriceWaterhouseCoopers for a 1999 survey of the coastal BC forest industry[107]. It should be interpreted as a very gross estimate because it includes several items that often change on a year-to-year basis. This category includes logging taxes, corporate income taxes, property taxes, and sales taxes.
- Provincial income taxes – The estimate is based on the employment estimates of Section 3.3.4, income for full-time employees by the major forest industry sectors and the effective provincial income tax rate for the different income levels.
- Sales taxes – The sales taxes represents the spending of direct, indirect and induced employment connected to the forest industry.

7.2 IMPACTS

7.2.1.1 Indicator Results

The following table presents government revenue derived from harvesting and processing North Coast TSA timber for each scenario.

Table: 7-1: Government Revenues derived from the harvesting and processing of North Coast TSA timber

Revenue category	Decades 1, 2 & 3 (0 – 30 yrs)		Decade 4 (31 – 40 yrs)	
	Baseline Scenario	LRMP Scenario	Baseline Scenario	LRMP Scenario
Stumpage	$943,940	Same	$943,940	$892,612
Export fee	69,280	Same	69,000	65,513
Other forest industry taxes	3,009,350	Same	3,009,350	2,845,712
Employment income taxes	2,570,700	Same	2,570,700	2,412,884

[107] Does not include $5.33 per m^3 of Workers Compensation Board (WCB) premiums.

Employment sales taxes	2,513,144	Same	2,513,144	2,358,004
Total BC government revenues	9,103,689	Same	9,106,134	8,608,663
Government revenues at risk	$0		$495,026	

7.2.1.2 Results Discussion

➢ Based on the timber harvest and supply projections, there are no government revenues at risk in the initial 30 years of a LRMP Scenario implementation. Government revenues are not at risk from LRMP Scenario timber supply changes until the 4th decade; approximately $500,000 per year, a 5.4% decrease from the government revenues projection for the 4th decade of the Baseline Scenario.

- The estimated annual government revenues arising from harvesting and processing North Coast timber is broadly estimated as approximately $9.1 million for the Baseline and LRMP Scenarios through their initial three decades.

- As in the forest industry employment and net economic value estimation cases, an under supply of timber below the recent historical harvest is the trigger for placing government revenues at risk. Change in potential timber harvest volume, driven by forces described above, affects stumpage and other taxes that are tied to harvest volume.

- Any reductions in forest industry related tax revenues could be potentially offset by new revenues tied to businesses and projects leveraged by conservation funding. As well, there is the potential for avoided tax revenue losses from the tourism sector[108].

- Market action campaign could be renewed if ENGOs do not endorse the North Coast LRMP report, thereby lowering demand, harvest, employment and forest industry-derived government revenues. A fall in government revenues arising from market action campaigns is not factored into the above Baseline Scenario estimate.

- Implementation of the LRMP Scenario, along with other measures, especially those arising from the Treaty process, will lead to changes in plan area harvesting rights and a new apportionment. These changes may trigger claims for compensation. Other compensation claims could be triggered as well: elimination of development rights of mineral claim holders in new protection areas where mineral exploration and development are not specifically allowed; and elimination of use rights of commercial tenure holders (including log sorts, forestry camps, and tourism operations) in new protection areas where these activities are not specifically allowed.

[108] These would be revenues from businesses that would expand or establish under the LRMP Scenario but would not do so under the Baseline Scenario because of degraded nature-based tourism resources.

7.3 CONCLUSIONS

The following are the conclusions about the overall impact of the LRMP scenarios on BC government revenues.

- Baseline Scenario – Neutral
- LRMP Scenario – Positive

8. FIRST NATIONS

8.1 BACKGROUND

➢ In general, First Nations members have had nominal roles in the modern North Coast economy in all sectors but commercial fishing.

- A fundamental and unfortunate result of the federal government's restructuring of the Pacific salmon fishery in the mid and late 90's was a large reduction in First Nations participation in the fisheries sector.

- The forestry and wood processing sectors have been neither steady nor significant sources of employment for North Coast First Nations members. The tourism sector, where more entry level positions are available than in many other sectors, has also been a weak source of employment for First Nations.

- The following table shows recent labour force characteristics of First Nations communities in the plan area. The most striking feature of these results is the extremely high unemployment rate, ranging from 49 to 83%, of these communities. Their actively seeking employment rate is also very high.

Table: 8-1: Year 2000[109] Populations, Labour Force, Unemployed and Unemployment Rate for First Nations Communities

	Hartley Bay	Kitkatla	Lax Kw'alaams	Metlakatla
Population (#)	193	480	1,081	116
Labour Force (#)	94	227	475	65
Employed[110] (#)	57	84	221	41
Unemployment Rate (%)	49%	78%	83%	60%
Seeking Employment Rate (%)	38%	52%	43%	18%
Employed by sector (#)				
Fisheries	5	32	137	7
Forestry	1	6	0	2
Mining	0	0	0	0
Other	3	6	13	2
Public Sector	48	39	71	30
Tourism	0	1	0	0
Unknown	0	0	0	0

Source: Skeena Native Development Society March 2001

109 Most recent census

110 The employed and unemployed total do not add up to the labour force totals because the census developers classify seasonally employed persons as being both employed and unemployed.

- The data in the preceding table demonstrate that employment in the resource-based sectors of forestry and tourism have to this point been almost a non-factor in the region's First Nations communities.

- Lack of job opportunities is the main reason cited by residents of First Nations communities for their very high unemployment levels. The following table presents the top three reasons given for unemployment in each community based upon a survey of its residents.

Table: 8-2: Reasons for Unemployment

	Hartley Bay	Kitkatla	Lax Kw'alaams	Metlakatla
#1 reason	Seasonal opportunities only	No job opportunities / weak economic base	Seasonal opportunities only	Lack of transportation
#2 reason	Isolation	Isolation	Lack of education / training / skills	Lack of education / training / skills
#3 reason	Limited local funding	Seasonal opportunities only	Seasonal opportunities only	Seasonal opportunities only

Source: Skeena Native Development Society March 2001

- Almost 3,000 persons live in First Nations communities that are located in or near the plan area but the majority of Aboriginal residents of the plan area live in Prince Rupert. The Census indicates that 4,330 Aboriginal persons lived in Prince Rupert as of mid 2001, 30% of the city's population. The following table compares the economic status of Prince Rupert's Aboriginal population to the city's overall population[111].

Table: 8-3: Year 2001 Labour Force Statistics for Prince Rupert Aboriginal and Overall Population

City of Prince Rupert	Average annual earning for persons with earnings	Worked full-time	Unemployment rate	Labour Force Participation Rate	% of Govt. transfers in Income
Aboriginal population	$16,696	25%	37.9%	59.9%	32.6%
Overall population	$30,685	43%	15.4%	73.4%	12.3%

Source: Statistics Canada

- Although the economic status of Prince Rupert Aboriginal residents is nominally better than those in plan area First Nations communities, as a group, they are much economically worse off than the city's non-Aboriginal population. For example, the Aboriginal unemployment rate in Prince Rupert is more than double the unemployment rate for the overall population (which means the non-Aboriginal unemployment rate was approximately one-quarter of the Aboriginal unemployment rate of 37.9%). The

[111] This comparison understates the gap because it does not compare Aboriginal to non-Aboriginal populations of the city.

average income of Aboriginal residents of Prince Rupert is about 50% of the income level of the city's overall population.

- The preceding labour force figures represent the past. There are several important initiatives underway that will improve First Nations' access to the plan area's resources. An important element of these changes will be more mainstream employment, business and training opportunities for First Nations members. In addition to Treaty Negotiations, most plan area First Nations and the BC Government have entered into forest resource and revenue sharing agreements, whereby First Nations gain access to certain timber harvesting rights and revenue sharing. The following table documents basic information about these agreements. More details about these agreements are presented in Appendix I. First Nations have gained non-replaceable forest licenses through these agreements, which provide a tangible foothold in the regional forest industry.

Table: 8-4: Forest and Revenue Sharing Agreements with North Coast First Nations

First Nation	Date of agreement	Volume and term of tenure	Revenue sharing
Lax Kwa'alaams / Allied Tsimshian Tribes	October 10, 2003	650,000 m^3 total over 5 years[112]	$1,370,000 / year
Gitga'at / Hartley Bay	October 15, 2003	290,000 m^3 total over 10 years	$314,000 / year
Haisla First Nation	February 5, 2004	360,000 m^3 total over 5 years	759,000 / yr
Kitasoo First Nation	February 5, 2004	115,000 m^3 total over 5 years	242,000 / yr
Metlakatla Indian Band	December 8, 2003	210,000 m^3 total over 5 years	$345,000 / yr
Kitselas / Kitsumkalum First Nation	September 18, 2003	300,000 m^3 total over 5 years	$558,000 / yr[113]
Gitxaala	Initial offer made; currently under negotiation		

- There have been other important milestones that entail much improved access to resources leading to more employment and economic development opportunities for the region's First Nations members. They include the following.

112 Up to 135,000 m^3 from the Kalum Forest District, remainder in North Coast TSA

113 $241,000 / yr to Kitselas and $317,000 / yr to Kitsumkalum

- Since 2000, the Nisga'a have had a treaty with BC and Canada that recognizes their jurisdiction over approximately 2,000 square km, covering much of the Nass River watershed.

- The Gitga'at have embarked on a series of protocols, with non-Gitga'at resource users who operate in their traditional territory, which are the basis for employment and training of Gitga'at members and revenues from non-Gitga'at resource use.

- Triumph Timber, a North Coast TSA licensee has set a minimum target of 25% employment of First Nations members for its contractors and suppliers.

- The Tsimshian Stewardship Committee (TSC) received a joint federal-provincial contribution of $700,000 to facilitate development of cruise ship tourism and shellfish aquaculture opportunities. Formed in the final stages of the Kalum LRMP process, the TSC has provided a senior-level forum with BC Ministry of Sustainable Resource Management for discussing North Coast LRMP issues, government-to-government land resource use issues and spearheading economic development initiatives for member nations (ATT, Metlakatla, Kitselas, Kitsumkalum, and Gitxaala)

- Allied Tsimshian Tribes of Lax Kw'alaams, Metlakatla, Gitxaala, Kitsumkalum, Kiselas, Haisla and Gitga'at have drafted resource and land use plans to provide strategic level guidance for their resource management.

- First Nations (other than the Nisga'a) with interests in the plan area are active participants on the North Coast LRMP Table and have embarked on government-to-government negotiations with the BC Government about outstanding land and resource management issues stemming from the draft North Coast LRM Plan.

- The Nisga'a have participated in the North Coast LRMP process to ensure adherence to the Nisga'a Final Agreement and that specific Treaty interests are appropriately dealt with.

- In 2003, a consultant for the conservation sector undertook an extensive research program into economic development opportunities and barriers on coastal BC and estimated job potential and needs by community [Redstone October 2003]. The consultant saw Tsimshian communities in the plan area as having a current need for 123 jobs and employment potential in new resource-based enterprises of 260, suggesting a potential surplus of 137 jobs[114]. *However, the Tsimshian First Nations have indicated that these job need numbers are low and represent a starting point for discussions.* The following table shows employment potential by economic sector by community as estimated by the conservation sector's consultants.

[114] The employment potential will not be realized immediately but over the short-term. For example, shellfish pilot projects are underway, but full-scale shellfish aquaculture ventures have yet to be organized and implemented. The consultant saw ample potential for new resource-based enterprises but also saw institutional barriers to capturing the identified opportunities, "…strong community leadership will be crucial to overcome local barriers to economic development: simply bringing additional capital to the current situation will not be sufficient." [Redstone October 2003]

Table: 8-5: Resource-based job potential and job need

	Kitkatla	Metlakatla	Lax Kw'alaams	Hartley Bay
Conservation	3	6	5	11
Marine	7	7	7	7
Forestry	12	10	10	12
Cruise ship service	-	-	-	-
Shellfish	40	20	20	10
Service	15	11	11	10
Other	9	6	6	6
Total job potential	85	60	59	56
Total job need	54	15	34	20
Gap between job potential & job need	+ 31	+ 45	+ 25	+ 36

Source: Redstone Strategy Group, LLC

8.2 IMPACTS

8.2.1 Forest Industry

➢ In all likelihood, small reductions in timber supply through the implementation of the LRMP Scenario will not lower forest industry employment opportunities for the plan area's First Nations population.

- Opportunities are referenced in the above statement because of the current low involvement of First Nations in the area's forestry sector; their employment is not currently at stake. Implementation of the LRMP Scenario puts a few PYs of direct forest industry employment within the plan area at risk. These are not positions held by First Nations members in all likelihood. In the near term, three factors will serve as strong forces to increase First Nations employment in the local forest industry.

    - Significant timber harvesting rights are being made available to regional First Nations through interim measures so as managers of this timber First Nations administrators will have discretion in selecting harvesters and silviculture teams.
    - First Nations control and influence over disposition of timber in the plan area will attract non-First Nations into arrangements that help them gain access to this timber. Over the past few years, non-First Nations forestry companies have increasingly been entering into arrangements with First Nations that provide for training, employment and other benefits to First Nations members.
    - The current level of plan area employment derived from North Coast timber is quite low, about 0.2 PYs per harvested m^3. Increasing the plan area's share of forest industry employment will lead to jobs for First Nations and non-First Nations residents of the plan area, alike.

- A reduced AAC arising from a LRMP implementation will lessen the potential of First Nations to access additional timber. However, the right to harvest more timber does not

equate to an ability to sell more than the market will purchase. The current timber supply estimate for the LRMP Scenario is ---m^3, whereas the average harvest estimate, based on market demand is only slightly higher at 433,000 m^3. Following is a table that shows estimated harvesting rights in the North Coast TSA that takes into consideration the takeback of almost 80% of Interfor's apportionment.

Table: 8-6: Estimated annual post-takeback North Coast TSA Forest License volumes (m^3)

Licensee	License Volume
ATT	103,000 (515,000 over 5 years)
Gitga'at	29,000 (290,000 over 10 years)
Gitxaala	To be finalized
Metlakatla	21,000 (210,000 over 10 years)
Interfor	Approximately 40,000
Triumph Timber	139,231
Boyle & Dean	19,295
Thompson	29,385
BCTS	150,126
Forest Service reserve	2,872
Total	533,909

- For tenure re-allocation, the driving decision-making factors will be the following: North Coast TSA takeback volume; volumes allocated to First Nations under recent agreements; and LRMP THLB impacts. After the completion of government-to-government negotiations about the LRMP, BC Ministry of Forests will undertake a complete tenure re-allocation process for the North Coast TSA, likely this Fall. It is also likely that, for any licensee that is impacted to a great extent by the aforementioned factors, BC MOF will consider measures to transition that licensee in the interim, until the re-allocation occurs.

8.2.2 Tourism

➢ Implementation of the LRMP Scenario would benefit the emerging involvement of regional First Nations in tourism.

- This benefit arises because tourism opportunities for First Nations are often tied closely to nature-based tourism outside of Prince Rupert. The natural and cultural features accorded protection in the LRMP scenario will allow First Nations to forge ahead with joint ventures, protocol agreements and stand alone projects in the tourism field. Regional First Nations already have stakes in tourism endeavours, either through protocol agreements (Gitga'at and King Pacific Lodge), or joint ventures or sole operations (Metlakatla and Tsimshian Tourism Inc.). The Nisga'a have commercial recreation tenures with associated development proposals.

- Tsimshian Tourism Inc. positions the Tsimshian Nation to pursue business opportunities springing from the construction of the new Fairview Terminal and attraction of cruise ships starting in Spring 2004. Presentation of many facets of Tsimshian culture and history through crafts, art, souvenirs, tours and other experiences will be an important feature in providing an attractive stopover experience in Prince Rupert. As discussed in the tourism chapter, improved conservation of viewscapes, wildlife and other tourism based resources through the LRMP Scenario will be an important factor in branding the tourism image of the North Coast and building its nascent cruise ship business.

8.2.3 Traditional Values, Culture and Lifestyle

➢ Through participation in the LRMP process, regional First Nations have been able to propose many new areas for protection, which have important cultural and natural values for their members. As well, LRMP participation has provided a vehicle to inform other stakeholders about important cultural values and interests and comment on non-First Nations proposals that they think conflict with conflict with First Nations rights, values and interests. Development of plan language more reflective of First Nations interests is also an important component of First Nations involvement.

- Implementation of the LRMP Scenario would be consistent with the presentation of natural and cultural areas that First Nations have presented and discussed at the NC LRMP Table.

- Regional First Nations are seeking mutually acceptable formal agreements on protection areas. The LRMP does not specify these arrangements and they are under discussion in government-to-government negotiations linked to North Coast land and resource management. Finalization of a management arrangement for First Nations proposed protection areas are expected to help safeguard First Nations Cultural and Natural values. Protection by itself will ensure that natural and cultural values that may be impacted by industrial resource development do not occur.

- Regional First Nations were signatories to the landmark coastal agreement in 2001 that led to the creation of the North Coast LRMP process. In so doing, they influenced the parameters of the process, which include the core principle of ecosystem-based management and have participated in other forums to develop the operating strategies and principles for implementing ecosystem-based management in coastal BC.

  The draft North Coast LRMP has been specifically informed by First Nations traditional knowledge and traditional ecological knowledge has been accepted as integral to and part of ecosystem-based management. Through development and eventual implementation of ecosystem-based management, regional First Nations have been and will be able to directly influence resource management to maintain its consistency with First Nations culture and values.

- Traditional gathering and harvesting is an important cultural and economic factor amongst regional First Nations. The wellbeing of the salmon resource is of paramount concern amongst First Nations for their traditional harvesting. The following table presents area analysis results for the following.

  - Area of high and very high salmon ecosystems in the Gross Land Base (GLB) and THLB by scenario
  - Percentage of high and very high salmon ecosystems in current or proposed protection areas by scenario

Table: 8-7: Salmon supporting ecosystem indicator results

Indicator	Total amount	Scenarios

	in plan area	Baseline	LRMP
		% Share in Current and Proposed Protection Areas	
Salmon supporting ecosystems (High & VH abundance) GLB area	447,448 ha	3%	44%
Salmon supporting ecosystems (High & VH abundance) THLB area	37,605 ha	0%	35%

Source: MSRM

- *There are substantial increases in the proportion of GLB and THLB area with high value salmon supporting ecosystems, under protection for the LRMP Scenario compared to the Baseline Scenario.*

  The draft North Coast general management direction for aquatic and riparian ecosystems focuses on maintaining ecological function in and around aquatic habitats. The risk avoidance target for high quality salmon habitat, lakes, and floodplains is to maintain each in a 100% unmodified condition while risk managed strategies greatly reduce the potential for negative consequences. The level of protection under the LRMP Scenario approaches this target for floodplains, but not for high supporting salmon streams or lakes.

- The Khutzeymateem is the only protection area with high value salmon habitat in the Baseline Scenario. Under the LRMP Scenario, the following proposed protection areas have extensive high value salmon habitat: East Scotia, Lowe-Gamble, Stagoo, Quaal River, Johnston, Kingkown Inlet, Khyex, Pa aat, Kshwan, Chambers East, Kwnamass, North Kumealon and Banks-Walker Lakes.

8.3 CONCLUSIONS

➢ A LRMP Scenario implementation will enhance protection of natural and cultural values that are of considerable interest and concern to local First Nations, reduce risk of damage to resources that are fundamental to their traditional economies and on balance lead to more economic development than a continued implementation of current management.

- First Nations Land Use Plans have influenced the language and scenarios being proposed by the LRMP Table and if implemented will greatly increase the level of shared land use vision above the Baseline Scenario. Further discussions in government-to-government are expected to further address outstanding issues and bring a closer alignment in land use vision.

- This analysis has two key areas of impact concerning First Nations people. The first is the change in timber supply and the impact it can have on employment and economic development. The second is the changes in amount of protection areas and forest management practices and the impact they can have on cultural values, traditional economy, employment and economic development.

- There are several fundamental changes underway, in addition to the North Coast LRMP process, which will have significant influences on First Nations communities, values and economies. Since they are often linked together, isolating the impact of a single initiative, such as the LRMP process, is not possible so the following conclusions about the influence of an LRMP implementation necessarily are informed by these other inititatives.

The following are the conclusions about the overall impact of the scenarios on First Nations.

- Baseline Scenario – Negative

- LRMP Scenario – Positive

9. COMMUNITIES

9.1 BACKGROUND

In addition to the First Nations communities discussed in the previous chapter, there are two incorporated municipalities in the plan area, Prince Rupert and Port Edward. Prince Rupert's population accounts for approximately 90% of the total plan area population. Its population peaked in the mid 90s and slipped by approximately 15% over the 1996-2003 period. Port Edwards population has tumbled by over 35% since 1981. A steady stream of economic crises has spurred the outflow of residents seeking better economic prospects in the Lower Mainland, Okanagan and Alberta. The population trends for both municipalities are presented in the next table.

Table: 9-1: Municipal populations trends

Year	Prince Rupert	Port Edward
1981	16,652	1,018
1986	16,318	731
1991	17,098	761
1996	17,432	732
2001	15,376	694
2003	14,760	658
Change in pop. '96-'03	- 15.3%	- 10.1%
Change in pop. '91-'03	- 13.7%	- 15.7%
Change in pop. '81-03	- 11.4%	-35.4%

Source: Statistics Canada and BC Stats

The area's economic difficulties that have affected its population, income and community wealth levels include the following.

- Closure of the SCI pulp mill in June 2001 and the difficulties of its new owners, NSFP, in getting re-financed and operational
- Closure of Northwest Timber's (West Fraser) saw mill and chip line in 2001 and the auctioning of the mill machinery and equipment by the new owner, Arrowhead Forest Products, in November 2003
- Downsizing in commercial fishing industry due to federal government led re-structuring and depleted ocean stocks
- Catch limit reductions and species closures for sports fishing
- Lack of mineral exploration and mining activity due to negative perceptions of Canadian and international investor community about attractiveness of BC for mineral exploration and development
- Slow progress on North Coast Treaty claims
- US – Canada Softwood Lumber dispute
- Relatively higher cost of logging on the North Coast compared to other coastal BC locations and other major timber harvesting regions
- Closure of the northeast coal mines and its negative impact on Port of Prince Rupert rail traffic

There are initiatives underway that will have positive economic impacts on the plan area.

- Awarding of non-replaceable forest licenses to regional First Nations and opportunities to obtain forest licenses, which will much raise the involvement of First Nations in the area's forest industry and raise the area's share of forest industry employment derived from harvesting local timber
- BC Government's Forest Revitalization Plan creates the potential for Prince Rupert to seek a community forest license.
- Regional First Nations have pilot seafood aquaculture projects underway and the BC Government's lifting of its moratorium on aquaculture will lead to new full-scale aquaculture developments on the North Coast
- The sale of BC Rail to CN Rail has improved the likelihood of the construction of a container shipping facility at Prince Rupert
- Construction of a cruise ship terminal is attracting large cruise ships to Prince Rupert and various parties have estimated that upwards of 400 jobs in the area could be supported through cruise ship visitation
- BC Government's order-in-council allowing up to 35% of non-cedar harvest to be exported has helped to maintain logging activity in the plan area
- As a long-term opportunity, various investigations of offshore oil and gas environmental issues is an indicator that preliminary exploration work may be allowed and Prince Rupert will be the staging ground for much of this work

Although there are the above cited positive developments, the out-migration and high unemployment in First Nations communities and Prince Rupert indicates much work lies ahead to restore the wellbeing of the area's economy. The following table presents recent social assistance and employment assistance rates for Prince Rupert, which are double and, in the case of the 19-24 age cohort, triple the BC rate.

Table: 9-2: Dependency on the social safety net[115]

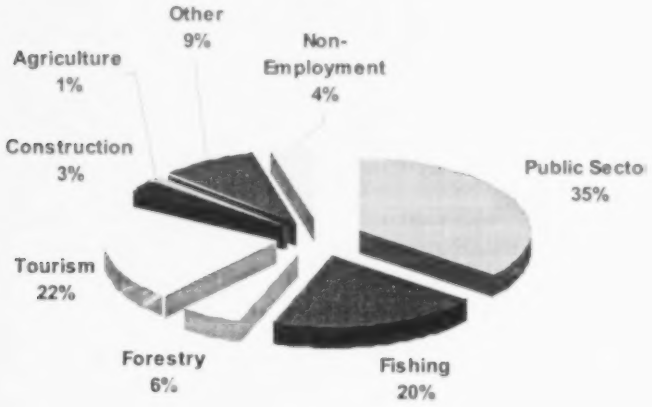
Age Cohort	BC Basic Income Assistance Recipients (%)		Employment Insurance Beneficiaries (%)		Total of BC Basic Income Assistance & EI Beneficiaries	
	Pr. Rup.	BC	Pr. Rup.	BC	Pr. Rup.	BC
Under 19	10.4	5.6				
19 – 24	14.0	3.7	3.6	2.5	17.6	6.2
25 – 54	6.3	3.2	5.7	3.4	12.0	6.6
55 – 64	3.6	2.2	4.3	1.5	7.8	3.7
19 - 64	6.8	3.1	5.3	3.0	12.0	6.1

Source: BC Stats

The largest basic sector in the plan area economy and therefore the main driver of the plan area economy is currently the public sector, which includes First Nations, local, provincial, federal, school board and hospital staff. They account for almost half of basic sector employment. Tourism is the largest private sector employer with approximately 22% of basic sector employment, followed by the fishing sector, which includes the wild fishery, aquaculture and fish processing. The following pie chart presents an estimate of the area's economic structure based on estimated basic sector employment.

[115] Most recent available data, Sept. 2002

Exhibit: Plan area economic structure (2001) shown as percentage distribution of employment by basic sector[116]



The plan area's economic structure had a lesser public sector orientation in 2000, when the SCI pulp mill (approximately 800 jobs) and West Fraser saw mill (approximately 70 jobs) were operating. The fishing industry is down by an estimated 500 jobs since 1996, about 50% of its employment. Although the public sector is the main economic force at this time, it too has lost employment; for example, HRDC moving staff to Terrace, BC Government staff cutbacks, and Coast Guard and grain inspection staff reductions.

The much diminished role of the pulp mill and dismantling of the saw mill are also sharply felt through the elimination of their spin-off employment at the local level. Both were seen to be good generators of indirect (suppliers and contractors) and induced (retail and service) employment. For example the pulp and paper indirect multiplier in the plan area is estimated at 1.66, meaning that for every one job in the SCI pulp mill, 0.66 jobs were supported amongst the mill's suppliers and contractors. By way of comparison, the two current main sectors, the public sector and tourism, have much smaller indirect multipliers, 1.13 and 1.08, respectively. Another way of looking at this issue is that five public sector jobs are needed to support the same amount of indirect employment as one pulp mill job. The following table provides estimated indirect and induced multipliers for the plan area.

Table: 9-3: Indirect and induced employment multipliers for the North Coast plan area

Multiplier	Logging	Pulp& Paper	Wood Mfg.	Mining	Tourism	Public Sector	Construc-tion	Fishing
Indirect	1.20	1.66	1.33	1.30	1.08	1.13	1.25	1.13
Induced	1.28	1.91	1.45	1.35	1.09	1.22	1.34	1.22

Source: Horne 2003

[116] Source: Robinson and Associates

The different indirect and induced job supporting capabilities of basic sectors does not establish an order of precedence or importance as the key driver of economic development is leveraging strategic strengths that are in demand by growing industries, not supporting or chasing businesses that may have high incomes and/or good spin-off potential but would only be a marginal industry competitor, subject to instability. West coast cruise ship tourism is not likely a good source of indirect and induced jobs (on the scale of a re-opened NSFP pulp mill) but it is certainly a burgeoning industry and the plan area has important attributes to capture a share of its stopover business.

A consultant for the conservation sector undertook an extensive research program into economic development opportunities and barriers on coastal BC and estimated job potential and needs by community as shown in the following table. The result is an optimistic one, because the consultant estimated there was potential for up to 808 new resource-based jobs in Prince Rupert [Redstone October 2003].

Table: 9-4: Resource-based job potential and job need

	Forestry	Cruise ship service	Shellfish aqua-culture	Service	Other sectors	Total job potential	Total job need	Gap
Prince Rupert	63	404	111	143	87	808	964	- 156

Source: Redstone Strategy Group October 2003

Although the study's output also concluded there was a need for almost 1,000 jobs in Prince Rupert, some opportunities, such as the new container facility or a re-opening of the NSFP pulp mill, weren't part of its projections. Although this study must be considered as high level and subject to further research, it indicates areas for job growth.

9.2 IMPACTS

9.2.1 Employment and Population

➢ Over the initial three decades of implementation, the LRMP Scenario will be a major force in protecting the plan area's employment base and its expected growth (as well protecting its natural environment). There is a net employment gain[117] arising from implementation of this scenario during this time period.

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[117] The BC Government and North Coast LRMP Table have drafted a Memorandum of Agreement regarding "no net job loss or better". The specific agreement around "no net job loss or better" can also be found at the beginning of the Community Stability and Economic Development chapter in the North Coast LRMP document. The North Coast LRMP Table agreement is as follows.

1. "No net loss of jobs, or better" means that economic change arising from the land use plan will, in aggregate, maintain or improve the number of jobs held by residents of the North Coast Plan Area.

2. The North Coast LRMP employment target is to reach a national average, including all First Nations communities, the North Coast Plan includes the following commitments to labour and resource dependent communities:

No net job loss or better attributed to the implementation of the North Coast land use plan Phase in EBM as we create new employment and a new economy.

- Employment gain for the LRMP Scenario over tne Baseline Scenario is due to the following factors:

  - Potential timber supply of the LRMP Scenario exceeds the recent historical harvest (433,000 m^3) during the initial three decades. Confirmation of SIBEC productivity indexes are likely to lead to higher potential timber supply estimation for the North Coast TSA over the short-, medium- and long-term.

  - LRMP Scenario implementation minimizes the risk of forest product market action campaigns and/or consumer backlash, which would reduce Baseline Scenario employment, probably well below the LRMP Scenario's employment and affect forest industry employment throughout the BC coast.

  - A LRMP Scenario implementation sustains the plan area's tourism resource base and its expected growth in tourism visits. It avoids the loss, due to some degradation of the area's natural resources in a Baseline Scenario implementation, of a part of that base and of its projected growth.

  - A LRMP Scenario implementation helps sustain major salmon habitat, which is a fundamental factor in the wellbeing of the region's tourism and commercial salmon fisheries employment, and is a vital food source for its First Nations communities.

  - On a province-wide basis, a decrease in North Coast wood fibre supply will be filled by other Coastal BC areas. There is a timber supply surplus of 3.7 million m^3 over timber demand on the BC Coast.

  - The draft NC LRMP incorporates flexibility mechanisms to help avoid severe negative impacts on human wellbeing.

  - Approval of North Coast LRMP triggers transition mechanisms of Coast Sustainability Trust[118].

  - Approval of North Coast LRMP opens up potential for creating conservation funding mechanisms that are focused on coastal BC, which could help create new employment opportunities.

  - Current plan area direct forest industry employment intensity of approximately 0.2 PYs per '000 m^3 of harvested timber is very low. Maximum potential is estimated as approximately 1.25 PYs per '000 m^3. Doubling plan area direct

Provide for transition through the management structure for EBM.
If the forestry, tourism, mining and other employment in aggregate does not achieve no net job loss or better, this will trigger more intensive/practical adaptive management, flexibility, and transition efforts through EBM.

[118] Information on the Coast Sustainability Trust is provided in Appendix III. The takeback implementation will trigger the Forestry Revitalization Trust and information about its' main provisions are provided in Appendix IV

forest industry employment intensity (to 0.4 PYs per '000 m^3) would yield about 75 direct PYs.

- No population loss is anticipated with a LRMP Scenario implementation because of zero job loss.

- However, in many forestry towns in BC, the profile of the population is aging and past lay-offs of low seniority individuals has tended to raise the average age of forestry employees, so those remaining in a community tend to be less mobile and less likely to move on. If there were small job losses arising from a LRMP implementation this trend would preserve population levels in Prince Rupert but create problems for those community and social services that have to deal with higher unemployment levels. Natural attrition could also absorb very small levels job loss and some of these individuals are likely to retire in the area.

9.2.2 Community Wealth

➢ No community wealth loss is anticipated with a LRMP Scenario implementation because of zero net job loss.

- Over the medium to long-term, a substantial decline in any economic sector affects the overall wealth of the community. The closure of Prince Rupert's pulp and saw mills and decline in the vitality of its commercial fisheries industry has translated into declining measures of community wealth, such as lower net worth of residents from declines in residential property values, capital investments of industrial real property, average wage and income levels and retail sales.

- It is important to sustain and nurture forest sector employment, and in the case of the North Coast, more fully capture the employment potential of its timber, because of relatively high pay levels for the blue collar portion of its work force and the aforementioned high indirect and induced employment multipliers of its industries. The following table presents average income levels for certain types of BC forest workers[119] as reported in the 2001 Census.

Table: 9-5: BC Forest Sector incomes by occupation, 2001 Census

Forest Sector Occupation	Income
Logging machine operators	$54,235
Chain-saw and skidder operators	$48,018
Logging & forestry labourers	$43,365
Silviculture & forestry workers	$43,306
Pulping control operators	$67,006
Pulp mill machine operators	$64,406
Sawmill machine operators	$45,209
Lumber graders	$46,626
Forestry professionals	$61,858

Source: Statistics Canada and author's calculations

[119] Reported for persons who worked full-time

- The preceding incomes are higher than those in blue collar dominated service sectors so sustaining and growing forestry employment is an important force in growing plan area community wealth. Pay levels of the forest and tourism industries are often compared[120] but each industry appeals to different segments of the work force. It is desirable on the North Coast to have both industries thriving and contributing to community wealth. The LRMP Scenario ensures that the driving force behind the North Coast forest industry, its timber supply level, is almost the same as the projected demand for its timber and the scenario maintains the tourism resource base that is driving growth in the area's nature-based tourism industry.

9.3 CONCLUSIONS

The following are the conclusions about the overall impact of the LRMP scenarios on plan area communities.

- Baseline Scenario – Negative
- LRMP Scenario – Positive

[120] The average income for a full-time worker in the BC travel and accommodation sector was reported in the 2001 Census as $31,897. The Pacific Analytics Inc. report prepared for the North Coast Backcountry Caucus estimated an annual income, on a FTE basis, of $42,600 including gratuities for workers in its' 13 surveyed tourism operations. The average per employee was $19,500 including gratuities.

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GLOSSARY

Account	In multiple account analysis, account refers to the categories of information or decision factors that are likely to be useful in the decision-making process.
AAC Apportionment	The allocation by the Minister of the AAC for a TSA among timber tenures in accordance with Section 8.0 of the Forest Act.
Allowable Annual Cut (AAC)	The volume of timber which may be cut each year from a forest management unit (e.g., a TSA), set by the Chief Forester in accordance with Section 7.0 of the Forest Act.
Back-country Tourism	Tourism which is reliant on those areas which are most remote and where intensity of use and development is low. Access is limited to non-motorized ground transport or by flight.
Baseline or Base Case	A description of the planning area incorporating environmental, economic and community aspects. The Baseline states the status of values for each account at the status quo. It contains information on historic conditions and trends, current conditions, and future conditions predicted on the basis of present land use and management strategies.
Biodiversity	Biological Diversity. The diversity of plants, animals and other living organisms and their habitats measured by factors such as genetic variability, number of species, and variation in species composition.
Biogeoclimatic Zones	Areas which are defined by similar biological, physical and atmospheric characteristics.
Coarse Woody Debris	Sound and rotting logs and stumps that provide cover for plants, animals, and their predators.
Community Analysis	The critical examination of the implications of changes in resource use under the Base Case or alternative scenarios for community or social well-being in the planning area.
Constant (or Real) Dollar	The current value of a dollar after general inflationary effects have been removed.
Cut Block Adjacency	Integrated management guidelines restrict harvesting in areas adjacent to a cut block until that cut block has satisfied certain regeneration requirements (i.e., green-up requirements).
Direct Impacts	Impacts of a change in forest resource use on the employment, household income, etc., generated by industries directly

	dependent on the resource.
Economic Activities	Activities that consume factors of production (e.g. labour, capital, etc.) and produce economic benefits for society.
Economic Analysis	The critical examination of the implications of changes in resource use under the Base Case or alternative scenarios for economic conditions in the planning area.
Economic Base Theory	In economic base theory, the basic or direct sector(s) are seen as the driving force in the local economy. The basic or direct sector is an industry or group of industries in a community or region which sells its output or services to buyers who live outside the region. It could be a forest industry which sells 2x4s, a hotel which caters to outside visitors or pension payments from Ottawa to local residents. The non-basic or indirect sector supplies goods and services to the direct sector and caters to the personal demands of employees of the direct and indirect sectors.
Ecoprovince	An area of the earth's surface characterized by very broad ecological interactions between the four major environmental components of the ecosystem: air, water, land and biota.
Ecosection	An area with minor physiographic and macroclimatic or oceanographic variation. There are 110 ecosections in BC of which 100 are terrestrial.
Ecosystem	Any complex of living organisms together with all the other biotic and abiotic (non-living) factors which affect them.
Ecosystem Network	A planned landscape zone that serves to maintain or restore the natural connectivity within a landscape unit. It can comprise a variety of fully protected areas, sensitive areas, classified areas, and old growth management areas.
Environmental Analysis	The critical examination of the implications of changes in resource use under the Base case or alternative scenarios for environmental conditions in the planning area.
Environmentally Sensitive Area	Notable non-timber values, fragile or unstable soils, or areas that have problems in establishing a new stand or where timber harvesting may result in landslides.
Escapement	The number of fish which survive all fisheries and are estimated to return to their spawning grounds.
Exploitation Rate	The probability that a fish will die from fishing during a specified period. Also, the proportion of a group of fish (usually total stock) that are removed by fishing during a set

	period.
Existence Value	The value derived by people from knowing that something exists (e.g. wilderness), even if they do not intend to use it.
Front-country Tourism	Tourism activities and facilities available along major travel corridors and which are highly visible to the traveling public.
Green-up Period	The time needed for a stand of trees to reach a desired condition (i.e., height) to ensure maintenance of water quality, wildlife habitat, soil stability or aesthetics. Green-up requirements refer to the desired conditions.
Indicator	An attribute or measurement which reflects or indicates change. Indicators are tools for translating data into succinct information that can be readily understood and used in decision-making. Indicators are used in the analysis to identify changes in conditions due to alternative courses of actions.
Indirect Impacts	Impacts on employment, household income, etc., generated by the change in the demand for goods and services required by the directly affected industries.
Induced Impacts	Impacts on employment, household income, etc., generated by the change in consumer spending resulting from changes in forest land use.
Land and Resource Management Planning	An integrated, sub-regional, consensus-building process that produces a Land and Resource Management Plan for review and approval by government.
Long-run Harvest	Refers to timber harvesting levels whereby the volume of timber harvested in any given period can be replaced by a similar volume of regenerated stands within the same period.
Long-run Sustainable Yield (LRSY)	A measure of potential sustainable timber yield for specified management assumptions.
Mid-country Tourism	Tourism activities and operations more remote than front-country but where use and access is more restricted.
Mineral Potential - High	Known deposits, prospects or indicated resources in highly favourable geologic environments. Very good to very favourable supporting geological, geochemical and geophysical data with a generally high degree of confidence in designation. Present exploration occurs (numerous tenures) and future exploration is expected, with high potential for mine or quarry development.
Mineral Potential -	Favourable geological environment for resource occurrence or

Moderate	accumulation generally by one line of geological, geochemical or geophysical evidence. Low to moderate confidence in designation which can be improved with additional prospecting. Future exploration likely and to be expected (some tenures) with good potential for upgrading classification.
Mineral Potential - Low	Current data indicates the existence of resources unlikely. Lower priority in exploration; however, exploration could occur.
Mineral Potential - Undefined	Current data is either insufficiently detailed, or indicates that the existence of resources is unlikely. Generally moderate degree of confidence in designation. Lower priority for exploration; however, exploration could occur, and tenures and occurrences are likely. Geoscience surveys and prospecting may result in upgraded classification.
Mineral Tract	Represents units in which the geology of an area can be considered in a similar fashion. Tract boundaries are geological features such as faults or major contacts.
Multiple Accounts Analysis	A method of socio-economic evaluation that accounts for both measurable and non-measurable benefits and costs, and compares the impacts of different objectives on several socio-economic features or accounts.
Multipliers	Coefficients which indicate the historical relationship between economic sectors and impact categories in an economic impact model. For example, a total employment multiplier of 2.5 for the forest industry indicates that there are 1.5 indirect/induced jobs attributable to 1 forest industry job.
Not Satisfactorily Restocked (NSR)	Productive forest land that has been denuded and has failed, partially or completely, to regenerate naturally or artificially.
Old Growth	Old growth forest that contains live and dead trees of various sizes, species, composition, and age class structure. Old growth forests, as part of a slowly changing but dynamic ecosystem, include climax forests but not sub-climax or mid-seral forest. The age and structure of old growth varies significantly by forest type and from one biogeoclimatic zone to another.
Old Growth Attributes	Structural features and other characteristics of old forests, including: large trees for species and site; wide variation in tree sizes and spacing; accumulation of large dead standing and fallen trees; multiple canopy layers; canopy gaps and understory patchiness; elements of decay such as broken or deformed tops of trunks and root decay; and the presence of

	species characteristic of old growth.
Person-year (PY)	A standard measure of employment that takes into account part-time, seasonal, and over-time work. For example, if an employee works full-time six months, he or she will account for 0.5 PYs of employment. Using person-years allows different types of employment to be compared on a similar basis. In this report, 1 800 hours per year represents a person-year.
Production/Productivity	Production refers to the number of fish produced, often used in a stock-specific sense or for a particular enhancement project. Productivity refers to the rate of production, usually in terms of returning adults
Protection Area	An area in which governments, either Federal, BC, First Nations or local, usually only allow passive activities, such as hiking and sightseeing and prohibit certain activities, usually industrial development and often hunting, fishing and disturbance of cultural resources. The areas can be designated as a certain type of protection area under the Park Act or candidates for designation under the Park Act or a yet to be drafted and enacted piece of federal or provincial legislation.
Qualitative Measures	Measures that cannot be expressed numerically, but depend on subjective evaluation.
Quantitative Measures	Measures that can be expressed numerically and can be reproduced without ambiguity.
Recreational User Day	All or part of a calendar day spent participating in any form of recreation.
Resource Analysis	The critical examination of information relating to the effects of land use designations and management strategies (Base Case and alternative scenarios) on the bio-physical resources in the planning area.
Riparian Zone	The stream bank and flood plain adjacent to streams or water bodies, with particular reference to the vegetation.
Scenario	A coherent set or "package" of proposed changes in land use designation and management strategies for consideration.
Stand Level	The level of forest management at which a relatively homogeneous land unit can be managed under a single prescription, or set of treatments, to meet well-defined objectives.
Status Quo	The current socio-economic conditions related to the existing

	forest land management strategy and the expected socio-economic conditions if the strategy remains unchanged.
Timber Harvesting Land Base	The portion of the total land area of a management unit that contributes to the long-term timber supply.
Timber Supply Area (TSA)	An integrated resource management unit established in accordance with Section 6.0 of the Forest Act.
Use Value	The value derived from the direct use of a resource (e.g. forest recreation).
Visual Quality Objective (VQO)	Defines a level of acceptable landscape alteration resulting from harvesting and other activities. Several visual quality classes have been created based on the maximum amount of alteration permitted.
Watershed	An area drained by a particular stream or river. A large watershed may contain several smaller watersheds.

APPENDIX I - FOREST AND REVENUE SHARING AGREEMENTS WITH NORTH COAST FIRST NATIONS

Table A1 - Forest and Revenue Sharing Agreements with North Coast First Nations[121]

First Nation	Name of agreement	Date of agreement	TSA or TFL	Volume & term of tenure	Revenue sharing	Other features
Lax Kwa'alaams / Allied Tsimshian Tribes	Lax Kw'alaams Indian Band Forestry/Range Interim Measures Agreement	October 10, 2003	North Coast TSA & Kalum TSA	650,000 m^3 total -over 5 years Up to 135,000 m^3 from the Kalum Forest District remainder in North Coast TSA 5 Year NR but will contain a renewal provision	$1,370,000 / year	60 day process for operational plans required operating area within asserted territory representative timber profile renewal at no lesser AAC save proportional adjustment in the event of an AAC reduction
Gitga'at / Hartley Bay	Gitga'at Interim Measures Agreement Regarding Forestry Development	October 15, 2003		290,000 m^3 total -over 10 years 25,000 m^3 / year available for application in a forest license in North Coast TSA Following timber reallocation a further 165,000 m^3 total available for application	$314,000 / year	60 day process for operational plans required representative timber profile renewal at no lesser AAC save proportional adjustment in the event of an AAC reduction harvest within traditional territory 5 year agreement but renewal options and some clauses pertaining to 10 years

[121] Note terms referenced in this chart are from the Forest and Revenue Sharing Agreements which may have specific meanings as defined within the agreements

First Nation	Name of agreement	Date of agreement	TSA or TFL	Volume & term of tenure	Revenue sharing	Other features
Haisla First Nation	Haisla Forestry/Range Agreement	February 5, 2004	TFL 41	360,000 m^3 total over 5 years 130,000 m^3 available for application in a forest license following timber reallocation a further 230,000 m^3 total available for application in TFL 41	759,000 / yr	all tenure is outside of the North Coast LRMP area 60 day process for operational plans required harvesting within traditional territory commitment to seek authorities for renewal
Kitasoo First Nation	Kitasoo Forestry Agreement	February 5, 2004	TFL 25 Block #5 North Coast TSA	115,000 m^3 total over 5 years 40,000 m^3 total available in TFL 25 Block 5 following timber reallocation 75,000 m^3 total available	242,000 / yr	part of Mid-Coast TSA and TFL 39 timber supply review. Little if any tenure in North Coast LRMP area expected 60 day process for operational plans required commitment to seek authorities for renewal
Metlakatla Indian Band	Metlakatla Indian Band Forestry Interim Measures Agreement	December 8, 2003	North Coast TSA	210,000 m^3 total over 5 years 50,000 m3 available following timber reallocation 75,000 m^3 available	$345,000 / yr	60 day process for operational plans required commitment to seek authorities for renewal harvesting within traditional territory
Kitselas / Kitsumkalum First Nation	Kitselas and Kitsumkalum Forestry/Range Interim Measures Agreement	September 18, 2003	Kalum Forest District	300,000 m^3 total over 5 years 60,000 m^3 per year available	$558,000 / yr $241,000 / yr to Kitselas $317,000 / yr to Kitsumkalum	60 day process for operational plans required commitment to seek authorities for renewal

APPENDIX II – FOREST INDUSTRY EMPLOYMENT ESTIMATION METHODOLOGY

Summary

Estimates of BC Coast timber *direct* employment come from surveys of BC Coast TSA licensees, processors of BC Coast TSA timber and BC Ministry of Forests about their harvesting, timber inputs and employment[122]. The survey responses provide the basis for calculating direct employment per m^3 in harvesting and processing. The ratios are expressed as person-years (PYs) per '000 m^3 of harvested timber.

Estimates of North Coast timber *indirect and induced* employment comes from multiplication of North Coast timber-based *direct* employment by indirect and induced employment multipliers that are calculated by BC Stats. The indirect and induced multipliers are assembled from information contained in the BC Government's Input-Output (I/O) model.

Employment and employment income

The employment estimates are based on licensee supplied information about their corporate and contractor employment. Employment is tied to timber harvested so the employment data provided by the licensees in the form of person-years (PYs) or full-time equivalents (FTEs) is divided by the volume of the licensee's harvest in the logging case and the volume of the wood processor's wood fibre input in the processing case. In so doing, the employment is expressed as an employment per 1,000 m^3 coefficient, which allows for a ready estimate of forest sector employment and income impacts based on timber harvest level changes.

The direct employment coefficients that were developed for the second Timber Supply Review were used in the employment estimations of this SEEA.

For the second Timber Supply Review, BC MOF surveyed licensees and processors in the BC coastal forest industry to obtain their employment numbers and their timber harvesting and wood fibre consumption volumes for a three-year period in the late 90s. They also asked licensees to supply the community of residence of their corporate and contractor employees.

Pierce Lefebvre & D.A. Raffles [March 2003] aggregated the employment coefficients for the coastal TSAs that were developed by BC MOF and computed employment coefficients for the Coast Region. The Coast Region employment coefficients are used in this SEEA because they are the result of a bigger survey sample, that is they represent the experience of more coastal licensees than if this SEEA relied only on the survey results of North Coast TSA licensees.

The following table presents BC Coast Region direct employment coefficients. They pertain to province-wide employment stemming from timber harvesting.

[122] BC Ministry of Forests also uses surveys of licensees to develop cost data for its Appraisal Manuals, data that is an important input into stumpage calculations.

Table A2 - Province-Wide Direct Forest Industry Employment Coefficients (PYs per '000 m^3)

Source	Silviculture/ Harvesting	Processing	Total
BC Coast Region	0.52	0.73	1.25

Source: Pierce Lefevbre and D.A. Raffles (March 2003)

The interpretation of the above figures are as follows.

- for every 1,000 m^3 of harvested North Coast TSA timber, there are 0.52 PYs of direct silviculture and harvesting employment on a province-wide basis. The 0.52 coefficient includes North Coast plan area direct forestry employment.
- for every 1,000 m^3 of harvested North Coast TSA timber that is processed in BC, there are 0.73 PYs of wood processing employment on a province-wide basis.
- for every 1,000 m^3 of harvested North Coast TSA timber that is processed in BC, there are 1.25 PYs of forestry and wood processing employment on a province-wide basis.

Logging on the North Coast is based out of remote camps and forest workers commute from their homes, staying in the camps for several days (usually 10 days) and departing for home for a few days (usually 4 days). The BC MOF survey of North Coast licensees showed that a minority, 35%, of silviculture and harvesting workers were residents of the plan area, the majority resided outside of the plan area. Using this percentage local share of forestry employment, the plan area's share of the aforementioned province-wide employment coefficient is 0.35 x 0.52, that is the plan area's direct forestry employment coefficient is 0.18 PYs per '000 m^3 of harvested North Coast TSA timber.

The BC MOF survey was undertaken in the late 90s when the Skeena Cellulose pulp mill and Northwest Timber saw mill and chip line were operating. Therefore, at that time, there was local processing employment based on North Coast TSA timber; employment that now occurs outside of the local area, either in the Lower Mainland, on Vancouver Island or offshore in Japan or Korea. Currently the plan area processing employment coefficient is zero or negligible. Using the results of the BC MOF survey and therefore the local processing employment experience of the late 90s, if the NSFP/SCI pulp mill was operating today and consuming the same amount of North Coast TSA fibre today as it did in the late 90s and there was a saw mill in the plan area today consuming the same amount of North Coast fibre today as Northwest Timber consumed in the late 90s, then the plan area processing coefficient would be 0.23 PYs per '000 m^3.

Following is a table that presents province-wide indirect/induced and total multipliers for the forestry, wood saw milling and pulp and paper processing industries. Multiplying the aforementioned direct employment coefficients for the province by the indirect/induced multipliers yields a total direct employment coefficient.

Table A3 - Province-Wide Indirect/Induced Forest Industry Multipliers

Industry	Harvesting & Silviculture	Pulp & paper	Other Wood Processing
Multiplier	1.77	2.83	2.78

Source: author's calculations based on Horne April 2003

The indirect/induced employment coefficients are calculated from BC Government Input/Output Model industry ratios.

BC Stats, a branch of the BC Ministry of Finance and Corporate Relations, has prepared economic base multipliers for all parts of BC except for the Lower Mainland [Horne January 2004]. They provide indirect/induced multiplers for the plan area[123]. The following table shows the indirect and induced multipliers[124] for the North Coast forest industry.

Table A4 - Plan Area Indirect/Induced Forest Industry Multipliers

Industry	Harvesting & Silviculture	Pulp & paper	Other Wood Processing
Multiplier[125]	1.28	1.91	1.45

Source: Horne January 2004

Forest sector employment income was estimated using Statistics Canada 2001 Census data Harvesting employment income is estimated to be $54,352 for a full-time worker. Pulp and paper income and wood processing income are estimated to be $61, 657 and $49,749, respectively.

Indirect employment income is obtained by multiplying the estimated indirect employment by an average annual after-tax income of $35,340.

Qualifications

The quality of an analysis is a function of the skills of the analysts and the time and resources provided to undertake it. These socio-economic assessments are intended to provide a broad understanding of the fundamental economic, environmental, social and Aboriginal community issues and to stimulate reflection and discussion. Numerous stakeholders and audiences, including forest companies, environmental organizations, local government officials, and Aboriginal governments, use the assessments, which are neither funded nor prepared as definitive

[123] And can be interpreted as a subset of the province-wide multipliers. How much of the indirect and induced economic activity that is generated by direct economic activity in a region depends on the size and complexity of the region's economy. Lower Mainland indirect and induced multipliers will be much higher than those for the North Coast because the former is a metropolitan economy and the latter is a resource-based economy that has a much lower level of business services and retail activity.

[124] Economic base multipliers are calculated in a different fashion than input-output multipliers. The direct and indirect portions of the I/O approach are roughly equivalent to the basic portion. The induced portion of the I/O approach is roughly equivalent to the non-basic portion of the economic base multiplier.

[125] This multiplier incorporates the assumption that employment insurance and other social safety net programs to employed and displaced workers will temporarily encourage them not to leave the community, thereby reducing the induced impacts of a lower harvest level.

documents on the subject. The following qualifications should be kept in mind as readers interpret the analyses. Every projection, no matter how comprehensive or well-funded it may be, must account for uncertainty. This analysis is based on recent historical experience and is undertaken by experienced analysts using widely accepted methods.

The foundation for the forestry related projections is employment per thousand cubic metres of harvested and processed timber. This historical relationship between forest industry employment and timber harvest volume is assumed in the projections not to vary over the long-term planning horizon of this study. This assumption produces a linear relationship. The many factors that influence this relationship, however, including technology, input costs, and timber prices, will vary over the short-, medium and long-terms. No attempt is made herein to forecast or predict changes in these variables or to include related sensitivity analyses.

APPENDIX III - COAST SUSTAINABILITY TRUST

Introduction

The BC Government created the Coast Sustainability Trust in March 2002 as an element of its Coast Sustainability Strategy to reduce the economic impact of coastal land-use decisions on workers, contractors, and local communities. It is a $45[126] million trust fund managed by a trustee, who is assisted by an advisory board that includes representatives from Truck Loggers Association, Interfor, IWA Canada, BC Ministry of Forests and local government (Campbell River city council). There are five regional steering committees; the North Coast committee has representation from the City of Prince Rupert, District of Port Edward, Prince Rupert Economic Development Commission, Tsimshian Stewardship Committee, Tsimshian Tribal Council and Haisla First Nation.

Funds

The fund is structured as follows.

- $25 million (from the BC Government) in a "Mitigation Account" ($15 million allocated for displaced Central Coast workers and contractors; $5 million for the North Coast and $5 million for QCI)
- $10 million (from the BC Government) in a "Matching Funds Account" ($1 million for each of five regional steering committees, including North Coast committee and $5 million to help address EBM related impacts)
- $10 million of matched funding from non-BC Government entities

Objectives

The Trust is engaged in funding activities to achieve the following.

- Short-term mitigation for eligible workers
- Short-term mitigation for eligible contractors
- Reduced capacity of forestry operations and reduced labour force capacity
- Leverage funds from private enterprise to support restructuring
- Community economic development planning and projects

Eligibility

Eligible beneficiaries include the following.

- Forest industry workers and contractors that provided services to a Crown tenure holder in either the North Coast, Central Coast or QCI during the January 1, 2000 to April 4, 2002 period
- Any First Nation on the North Coast, Central Coast and QCI
- Municipalities and unincorporated areas on the North Coast, Central Coast and QCI

[126] The Trust's termination date is March 31, 2007.

- Any individual, corporation, partnership or other entity that the Trustee appoints as a benficiary[127]

Funding Priorities

The Trust's funding priorities are as follows.

Table A5 – Coast Sustainability Trust Priorities

Priority	Beneficiary	Trust Account
1.	Workers who are not covered under a collective agreement – includes non-union and not full severance employees (and must be affected by the land use plan protection areas)	Mitigation Account
2.	Logging contractors and sub-contractors whose contracts have been impacted by a land use plan protection area	Mitigation Account
3.	Initiatives that allow for a rational reduction of the unionized labour force to cushion land use plan protection area affects	Mitigation Account
4.	Workers and contractors affected by operational restructuring to respond to the impact of EBM.	Matching Funds Account
5.	Communities affected by land use planning or EBM	Matching Funds Account

Disbursements

The Coast Sustainability Trust has yet to distribute funds in the North Coast. A recent request for expressions of interest led to the submission of eight proposals from North Coast applicants for Matching Funds Account monies.

The Trust is awaiting decisions about new North Coast protection areas before starting the process that leads to disbursing funds from the Mitigation Account[128].

To date $13.7 million has been allocated and $13.5 million has been disbursed to Central Coast workers and contractors. Individual disbursements are based on formulas. The average amount awarded to the 181 workers who have received monies is approximately $16,000.

An important initial step in the Mitigation Account process is for the licensees that are impacted by protection area decisions to prepare and submit a three-year investment plan that outlines the interests of affected stakeholder, including contractors to be bought out and employees who will lose work as a result of the protection area decisions.

[127] This eligibility provision gives some needed discretion to possibly address situations of persons or other entities who may be negatively impacted by a new North Coast protection area and who were not working or contracting in the area's forest industry during the Trust Deed's specified eligibility time frame of January 1, 2000 to April 4, 2002.

[128] Mitigation Fund monies must be paid out on or before March 31, 2005 or the remaining monies are rolled into the Matching Funds Account.

APPENDIX IV - BC FORESTRY REVITALIZATION TRUST

Introduction

The BC Government created the BC Forestry Revitalization Trust in March 2003 as an element of its Forestry Revitalization Plan. It is a trust fund managed by a trustee, who is assisted by an advisory board comprised of seven persons as follows:

- 2 nominees from the IWA;
- 1 nominee from the Truck Loggers Association;
- 1 nominee approved by the 3 interior logging associations (Central Interior Logging
- Association, Interior Logging Association and North West Logging Association);
- 2 nominees from Major License holders, 1 each for the Coast and the Interior;
- 1 nominee selected by the Minister of Forests.

Objectives

The purpose of the Trust is to mitigate adverse financial impacts stemming from restructuring that is caused by Forest Act licensee harvesting rights reductions ("takebacks") undertaken through the authority of the Forestry Revitalization Act[129].

Funding

The $75 million fund[130] is structured as follows.

- $47 million in a "Forest Worker Mitigation Account"
- $23 million in a "Contractor Mitigation Account"
- $5 million in an "Administration Account"

Eligibility

There are two classes of eligibility, workers and contractors.

- An eligible worker is defined as an employee of a "Major Licensee", as of March 31, 2003, whose AAC was reduced under the Forestry Revitalization *Act*, or an employee of a contractor or sub-contractor to that licensee (a "Bill 13" contractor).
- An eligible contractor is a Bill 13 contractor that had the amount of work in its contract reduced as a result of a reduction in the harvesting rights of the licensee that it contracts with.

Payments or distributions for contractors out of the Contractor Mitigation Account are subject to a preliminary allocation by the Trustee as between the Coast and the Interior. The Trust Agreement refers to a "Coast Base Amount" and an "Interior Base Amount". Funding will be

[129] It is not necessarily compensation paid to an eligible employee, but may be "mitigation" paid on behalf of that person.

[130] The Trust's termination date is March 31, 2008.

allocated from each Base Amount[131] for the benefit of contractors for each licensee in proportion to the AAC reduction experienced by that licensee in the relevant region (Coast or Interior).

[131] Since the relative degree of excess harvesting capacity on the Coast as opposed to the Interior is taken into account, the formula favours the Coast industry.

APPENDIX V - CONSERVATION INVESTMENTS AND INCENTIVES INITIATIVE (CIII)

➢ Through its consultants, the conservation sector has identified potential for helping to financially leverage and facilitate the creation of 25 conservation oriented jobs in the North Coast plan area[132]. It also has been examining the feasibility of raising funds that would leverage other monies for coastal BC economic development and its consultants have identified the potential for 1,068 new resource-based jobs on the North Coast.

- At the behest of the Gitga'at and Kitasoo/XaiXais First Nations, the Rainforest Solutions Project[133] developed a "conservation financing" initiative to assist in the implementation of conservation-based land use plans for their territories. The original concept expanded into the *Conservation Investments and Incentives Initiative* (CIII), a multi-party planning process (that includes the BC Premier's Office)

- The CIII is in the planning stage, but the BC Government has made no commitments other to help fund and participate in the initiative's feasibility and planning work.

- The feasibility of raising these funds is contingent on significant levels of conservation and commitments to ecosystem based management at the conclusion of the QCI, North Coast and Central Coast land use planning processes. The main features of this proposal as of December 2003 are the following.

Table A6 - CIII Features

Features	Conservation Financing	Socially Responsible Investments (SRI)	
Delivery organization	Coast Opportunities Foundation (COF)	Coast Community Loan Fund (CCLF)	Community and Conservation Venture Fund (CCVF)
Type of financing	Contribution (grant)	loan	equity
Total amount of capital (initial targets)	$120 M. $96 M. for funding conservation up to $24 M. for COF operations	$22.5 million	$30 million
Source of capital	$60 M. – BC & Fed. Govt.s $60 M. – philanthropic	$6.0 M – BC & Federal Govt.s $4.5 M – Philanthropic	$9 M – BC & Federal Govt.s subordinate investment

[132] An LRMP implementation is expected to occur gradually so forest industry employment impacts are not expected soon after implementation. Conservation funding must be raised from several sources and institutions must be established to raise and manage these monies so job impacts in the plan area from this source are also a few years away. The forest industry jobs at risk in the plan area, region and the rest of the province do however set an objective for those organizations seeking to mitigate employment and community impacts from an LRMP implementation. In the forest industry employment section of this document it was identified that 21 plan area PYs and 122 PYs in the rest of the province are at risk.

[133] Member Organizations are ForestEthics, Rainforest Action Network, Greenpeace, and Sierra Club of Canada (BC Chapter).

	foundations, individuals, & organizations	Foundations $12 M – Socially Reponsible Investors	$21 M – Socially responsible investors
Geographical eligibility	BC Central Coast, North Coast & Haida Gwaii	BC Central Coast, North Coast & Haida Gwaii	Worldwide
Initiative location eligibility	BC Central Coast, North Coast & Haida Gwaii	BC Central Coast, North Coast & Haida Gwaii	BC Central Coast, North Coast & Haida Gwaii
Community eligibility	First Nations	small and medium-size businesses or organizations or First Nation	small and medium-size businesses or organizations or First Nation
Supported projects	- Businesses & economic development projects -Conservation activities	New & existing businesses	New & existing high-growth businesses that operate in accordance with sustainable development principles

APPENDIX VI – EMPLOYMENT IMPACTS

The following table contains forest industry employment estimates by decade for the projected timber supply flow of the LRMP Scenario.

Table A7: Forest Industry Employment Estimates[134] (PYs) for the LRMP Scenario

Indicators	Decade					
	1st (0-10)	2nd (11-20)	3rd (21-30)	4th (31-40)	5th (41-50)	6th (51-60) & thereafter
Timber supply (m^3)	565,416	507,866	456,071	409,455	367,655	335,681
Plan Area Employment (PYs)						
Direct Silviculture & Harvesting	102	91	82	74	66	60
Direct Processing	0	0	0	0	0	0
Total Direct	102	91	82	74	66	60
Indirect/induced	28	26	23	21	19	17
Total Direct + Indirect/induced	130	117	105	95	85	77
Province-Wide Employment (PYs)						
Direct Silviculture & Harvesting	294	264	237	213	191	175
Direct Processing	362	320	283	249	218	195
Total Direct	656	493	520	462	409	370
Indirect/induced	808	715	631	556	489	437
Total Direct + Indirect/induced	1,464	1,299	1,151	1,018	898	807

[134] In this forecast, a coefficient based on direct forest industry employment per '000 m^3 of harvested timber was applied that is based on the average experience found across the BC Coast forest industry. Detailed information about employment coefficients appear in Appendix II.

The following table contains forest industry employment estimates by decade that would be supported by the projected timber supply flow of the Baseline Scenario.

Table A8: Forest Industry Employment Estimates[135] (PYs) for the Baseline Scenario

Indicators	Decades		
	1st (0-10) thru 6th (51-60)	7th (61-70)	8th (71-80) & thereafter
Timber supply (m^3)	573,624	516,262	462,000
Plan Area Employment (PYs)			
Direct Silviculture & Harvesting	103	93	83
Direct Processing	0	0	0
Total Direct	103	93	83
Indirect/induced	29	26	23
Total Direct + Indirect/induced	132	119	106
Province-Wide Employment (PYs)			
Direct Silviculture & Harvesting	298	268	240
Direct Processing	368	327	287
Total Direct	666	595	527
Indirect/induced	821	728	641
Total Direct + Indirect/induced	1,487	1,323	1,168

[135] In this forecast, a coefficient based on direct forest industry employment per '000 m^3 of harvested timber was applied that is based on the average experience found across the BC Coast forest industry. Detailed information about employment coefficients appear in Appendix II.